

CHAPTER 6

ORGANIZATIONS AND INSTITUTIONS

The composition of the forest sector and the characteristics of each of its three main parts have been described in previous chapters. In this chapter the focus of attention shifts from 'parts' to 'people'. The sector is viewed from the standpoint of the men and women involved — all those who control its resources, participate in its activities and receive its outputs. They contribute as individuals, but also collectively and more importantly, in organized groups and administrative units composed of people who collaborate for particular purposes. The sector consists of organizations of various kinds, including government departments, private enterprises and NGOs. Perceived as a whole, it is a conglomerate made up of different units or groups, each having a particular role and contributing in a distinctive way to the wide range of activities which collectively distinguish the forest sector as an economic and social entity.

Human organizations are social systems of varying degrees of complexity. The forest sector contains a set of organizations, each of which is a distinct social unit. Seen in its entirety, the sector is also a large, complex social system which therefore can be regarded as a rather amorphous organization at a superior level. The sector has a multi-level structure, with subordinate organizations at subsector level and below linked to each other through their activities and outputs. Together, they form a recognisable whole, which displays its own set of distinctive sectoral characteristics.

The distinguishing feature of the sector is its dependence on forest resources. All the subordinate organizations which make up the sector, are involved, directly or indirectly, with forest-based activities. This dependency is obvious in the case of the individuals, groups and organizations engaged in forest management and tree growing; similarly, those employed in logging and other forms of forest harvesting rely on outputs from the forest. Direct dependency also extends further along the chain of production to organizations engaged in primary processing, secondary manufacturing, construction and overseas trade, which utilize wood and non-wood raw materials derived from the forest. The connection between forests and other organizations, which do not form part of the productive process, such as cooperatives and trade unions, is indirect; they serve the interests and protect the rights of people engaged in forest sector activities. Environmental NGOs seek to safeguard forest

resources by influencing public opinion and the media, altering the way forestry affairs are handled by governments, landowners and industrial enterprises; industrial NGOs look after industrial interests and may pursue different aims.

The forest sector is a loose conglomerate, held together by the interactions between organizations within it and by an institutional framework which supports its activities and controls its behaviour. Reliance on forest resources acts as a unifying influence. Market transactions connect organizations which manage forest resources to those that sell forest products; similarly, interactions between NGOs and other non-commercial bodies pervade the sector. All its participants have a common interest in preserving and protecting the forest resources on which their activities and prosperity depend, but different ideas on how that is to be done. The institutional framework regulates sectoral affairs by means of an infrastructure of policy, custom and law, allocates financial resources, and provides services, such as education and research. It contributes to the maintenance of harmonious relations within the sector and supplies leadership.

The behaviour of forest sector organizations and the institutional framework within which they operate can be influenced, for better or worse, by human intervention in sectoral affairs. The organizations which make up the sector have a mutual interest in promoting changes from which they can all benefit. Due to the interactions within the sector, it is necessary to manage it as a whole in order to obtain the benefits of synergy. A holistic attitude therefore implies the adoption of a comprehensive approach to sector management and the promotion of organizational change within it. As the forest sector is a voluntary association of member organizations, its development must be based on consent.

The organizational and institutional foundations for sector management are presented in the first two sections of this chapter. Section 6.1 deals with the way the sector is organized and the types of organization of which it is composed; Section 6.2 describes the sector's institutional framework and the functions it performs. The third section considers how best to manage the forest sector and develop its potential.

6.1 ORGANIZATIONS

When people associate in groups to undertake particular activities, as in the forest sector, they are said to be organized. 'Organization' refers to group activities carried out in an orderly fashion; the groups which carry out these activities are called 'organizations'. The members of each group share its workload, are responsible for its performance and contribute to its achievements. Some groups are highly organized and adopt formal working arrangements, others are loosely structured and informal. They vary in size from small families to large corporations with hundreds of employees.

Organizations are social groups that display organized behaviour (see Box 5.1). Each organization is a distinct unit, able to function separately, with its own internal distribution of power and authority, set of human relationships, aims and aspira-

Box 6.1 Organizations

“Organisation is understood generally either as an activity containing a multitude of factors that lead to a meaningful whole, or as an orderly system of people and assets, which can contribute decisively to the solution of a task”

Source: *Tropical Forestry Handbook*, vol. 2, page 1633.

“All organisations have some function to perform. Organisations exist in order to achieve objectives and to provide satisfaction for their members. Organisations enable objectives to be achieved that could not be achieved by the efforts of individuals on their own. Through co-operative action, members of an organisation can provide a synergistic effect.”

Source: Mullins (1996), page 70.

Organizational behaviour refers to “the structure, functioning and performance of organizations, and the behaviour of groups and individuals within them.”

Source: Pugh (1971), page 9.

tions, and sense of identity. Simple organizations contain a single social group, more complex organizations are made up of several groups working in combination. Large organizations are hierarchical and need a structure of power and responsibilities in order to provide leadership and control over lower level group activities. Organizations, large and small, can be associated to form compound organizations which display distinctive organizational characteristics of their own. The forest sector is a conglomerate of this kind. It consists of numerous separate organizations, each of which is, to a large extent, independent and self-regulating. Notwithstanding its diverse composition, the sector is an easily recognized entity which can be treated as a big, loosely-structured organization in its own right.

Types of Organization

There are many sorts of organization, which perform a wide variety of functions. They vary greatly in size, complexity, structure, behaviour and style. Several attempts at classifying them have been made, based on their different characteristics, such as type of authority, purpose, beneficiaries and activities. These general systems of classification provide background information and some insights into organizational behaviour. They provide a starting point for more detailed examination of forest sector organizations and the way they work.

The sociologist Max Weber for example, distinguished between organizations according to the way in which authority is legitimized; he was interested in why people did what they were told¹. He divided them into traditional, charismatic

and bureaucratic organizations. The *traditional* type is characterized by custom and natural right to rule (as with hereditary monarchs, the pope or a paternalistic employer), authority in *charismatic* organizations is legitimized by belief in the personality and inspiration of the leader, and the *bureaucratic* type, which Weber regarded as the most efficient, is based on the acceptance of law, formal rules and procedures. It is useful to distinguish these types of authority for analytical purposes, although real organizations do not display them in pure form. Bureaucracy is most closely linked with government organizations and, in the forest sector, is associated with forestry departments and the ministries responsible for administering forest resources. However, bureaucratic characteristics are displayed by all large organizations which rely on set procedures to control the activities of their personnel.

Classifications based on the purposes of organizations involve grouping them in various ways. Mullins distinguishes the following categories²:-

- economic organizations (business firms),
- protective organizations (armies, police forces, trade unions)
- associative organizations (clubs and societies),
- public service organizations (local authorities and hospitals),
- religious organizations (churches).

He also distinguishes political, educational, military and voluntary organizations. Many organizations do not fit easily into a classification of this sort and others are multi-purpose. In the forest sector, NGOs might be classed as associative or protective or political. Similarly, government forest departments have public service and protective functions. While it may be useful to separate commercial from non-commercial organizations or private interests from government, these distinctions are inadequate to describe fully the sector's composition, or to represent the diversity of its social groups, the differences in their structure, and the variety of interests they represent.

Similar shortcomings are evident in classifications based on primary beneficiaries, (excluding benefits accruing to managers). Four types of organization can be identified according to who receives the benefits³:-

- *Mutual-benefit associations*, where the prime beneficiary is the membership, such as political parties, trade unions and professional associations.
- *Business concerns*, where the owners and top management are the prime beneficiaries, such as industrial and other firms which are operated for profit.
- *Service organizations*, where the client group is the main beneficiary, such as hospitals, schools and welfare agencies.
- *Commonweal organizations*, where the prime beneficiary is the public-at-large, such as central government departments, the armed services and the police.

The prime beneficiary is not necessarily the only beneficiary. Thus companies may contribute to charity as well as making profits for their owners, and forestry departments provide services, e.g. facilities for tourists, as well as public benefits, such as biodiversity conservation. All four types are represented in the forest sector.

A system of classification based on primary activities has been suggested by Katz & Khan, which divides organizations into four classes⁴:-

- *Productive or economic* — concerned with the creation of wealth, the manufacture of goods, and the provision of services for the public.
- *Maintenance* — concerned with the socialisation of people to fulfil roles in other organizations and society, e.g. schools and churches.
- *Adaptive* — concerned with the pursuit of knowledge and the development of ideas, e.g. research establishments.
- *Managerial or political* — concerned with adjudication, co-ordination and control of physical and human resources and other sub-systems, e.g. government departments, trade unions and pressure groups.

The forest sector contains examples of all four. However, it is often difficult to decide to which group an organization should be assigned; forestry departments are frequently involved in all of them.

Forest Sector Organizations

These general categories are not capable of describing fully the rich variety of organizations and interest groups found in the forest sector. They provide some useful information about types of activities, their purposes and beneficiaries, but a more detailed scheme of classification, is required to explain adequately the wide variety of sectoral interactions and behaviour. Each subsector performs particular functions and contains a different assortment of organizations adapted to those functions. Therefore detailed analysis of the various types of organization present in the forest sector should be based on a subsectoral framework.

The organizations and informal groups which make up the subsectors are listed in tabular form in the following pages. The tables indicate the form of ownership, the primary purpose, type of activity and main beneficiaries of each organization or group. The lists are not intended to be exhaustive, but serve to demonstrate the variety of organizational forms found in the forest sector. Neither is the scheme of classification very precise, because the organizations actually present in many countries do not fit neatly into the categories shown. Some categories are likely to be missing or combined with others. In some cases the scope of a particular organization may be expanded to include a wider range of activities within the same subsector, as with some forestry departments in developing countries which, besides managing the national forest estate, also undertake extension work to promote tree growing on agricultural land. Sometimes an organization's activities extend across subsector boundaries; e.g. large forestry corporations frequently use their forests to supply raw material to their own mills and construct storage facilities from which to distribute the forest products they have manufactured.

Sector boundaries are also blurred. Some organizations are active both inside and outside the forest sector, as with trade unions which represent equivalent grades of workers in several sectors (e.g. clerical staff in the civil service). Similarly, farmers engaged in agroforestry are included in two sectors — only their tree growing

activities form part of the forest sector. Many companies operate in several sectors, taking advantage of similar manufacturing technology or the same distributional facilities to supply a variety of products in the same markets. Profitable opportunities to invest in other sectors may encourage a forest sector enterprise to enlarge the scope of its activities. In this way, successful small companies can grow into large corporations, regardless of sectoral and even national boundaries. Whether an organization or group is included in the forest sector is a matter of convenience; it depends on the extent of its dependency on forest resources and joint membership of several sectors is not precluded.

Table 6.1 provides an organizational profile for the forest management subsector, which shows the types of organizations and interest groups represented, with their characteristics.

In most countries, forestry affairs form part of the portfolio of a government ministry with wider responsibilities, such as agriculture or the environment. The agency which looks after forests on publicly owned land may be a forestry department within that ministry, or a semi-autonomous forestry authority appointed by the minister, such as the Forestry Commission in Britain. In countries with federal constitutions, forestry responsibilities are usually shared with the states, as in the USA, where the US Forest Service manages national forests throughout the country and each state government has its own forest department to run the state's forests. In some places (e.g. Malaysia) the central government employs staff and is responsible for forestry research and education, while the states control the forests. The arrangements vary from country to country, depending on various features such as the system of government, the relative importance of forestry matters in the national economy and the pattern of land ownership or tenure. There is no standard or 'best' way of administering a nation's forest resources and the profile is a generalized representation of the organizational features that are commonly present.

Pettenella⁵ has identified four models which describe the organizational arrangements for dealing with forestry by governments. In some countries forestry matters are the concern of a Ministry of Agriculture and Forestry or a Ministry of Rural Development; this model focusses attention on the role of forestry in the rural economy. A second model, applicable in countries where forestry is given considerable political and financial support and forest-based industries are important, is based on a separate Ministry of Forestry. A third type found in some countries such as Argentina, divides responsibility for forestry matters between two ministries: a Ministry of Economics, Finance or Planning, which is in charge of the commercial aspects of productive forestry, and a Ministry of Environmental Resources which looks after forest protection. The fourth type considers forests primarily as a provider of public goods and services, and allocates responsibility for them to a Ministry of Environment, or Ministry of Natural Resources or Ministry of Watershed Management and Forests. Pettenella points out that the effectiveness of the administrative arrangements depends heavily on inter-ministerial coordination and the avoidance of disputes. In practice, the type of model and the names of the

Table 6.1 Organizations and interest groups in the forest management subsector

Organization	Ownership	Primary purpose	Type of activity	Main beneficiaries
Government ministry with overall responsibility for forest resources	Public	Public service	Administration, coordination and policy making	Public-at-large
Federal and state forestry departments	Public	Conservation, production and amenity	Management of forest resources	Consumers, industrial users, employees
Other national and local government agencies with forestry responsibilities	Public	Conservation, production and amenity	Protection and management of forest resources	Consumers, industrial users, employees
Organizations engaged in promoting community and farm forestry	Mixed	Production and amenity	Promotion and advisory services	Local communities, consumers
Forestry companies and corporations	Private	Production	Forest management	Owners, industrial users, employees
Owners of forests and woodland	Private	Production and amenity	Forest management	Owners, users, employees
Farmers and agriculturists	Private	Production and amenity	Farm forestry, woodlots and shelterbelts	Owners, local communities, users of produce
Tree growers cooperatives and participatory forestry schemes	Mixed	Production and provision of services	Technical support, credit and marketing	Members, users of produce, consumers
Forest dwellers and shifting cultivators	Private	Production	Subsistence	Forest people
NGOs concerned with conservation and other special interest groups	Private	Conservation and amenity	Publicity and public awareness	Members, general public
Forestry consultants	Private	Provision of services	Management and advisory services	Consultants, employees and clients
Professional forestry associations	Private	Provision of services	Information, promotion and standards	Members
Trade unions representing forestry employees	Private	Provision of services	Negotiation and representation	Members

ministries are less important than the political support, provision of finance, degree of commitment and competence of the staff.

The profile distinguishes between the government's general responsibility for forestry affairs and its particular responsibility for managing forest land owned by the nation; the former tends to be carried out at ministry level, whereas the latter

Box 6.2 Separation of functions in the UK Forestry Commission

“The Forestry Commission as *Forestry Enterprise* develops its forests for the production of wood for industry, manages its estate economically, protects and enhances the environment, provides recreational facilities, stimulates and supports employment and the local economy in rural areas by the development of forests and the wood-using industry, and fosters a harmonious relationship between forestry and other land using interests, including agriculture.”

“The Commission as *Forest Authority* advances knowledge and understanding of forestry and trees in the countryside, develops and ensures the best use of the country’s forest resources, promotes the development of the wood-using industry, endeavours to achieve a reasonable balance between the interests of forestry and those of the environment, undertakes forest research, combats forest pests and diseases, and advises and assists with plant health, and safety and training in forestry. Finally it encourages good forestry practice in private woodlands by administering grant-aid and felling controls, as well as through forest research and advice.”

Source: Hart (1991), pages 1–2.

function is the task of government departments or specialized agencies. The state has a dual role - it is both a *forest authority*, with public policy functions, and a *forestry enterprise*, with the task of executing policy. The remit of the forest authority covers all forest resources in the country, including those that are privately owned, while the forestry enterprise manages the nationally owned forests. The Forestry Commission in Britain carries out both roles, although they are clearly separated (see Box 6.2). In many countries the distinction between them is not recognised and the functions are merged.

This separation of functions has been influenced by prevailing political attitudes, which in the 1990s favoured less government intervention in economic affairs and privatization of assets owned by the state. In Britain, the Forestry Enterprise is expected to operate commercially and, since 1981, about ten percent of the Forestry Commission’s land has been sold to the private sector⁶. At the same time there has been an opposing policy trend which favours nature conservation and expansion of broad-leaved forestry, to which free-market disciplines contribute very little. The Forestry Commission cooperates with other environmental agencies (such as English Nature) to achieve these broader objectives.

The case for privatization is most obvious where commercial timber growing takes precedence over environmental quality considerations, as in countries which have established large areas of man-made forests such as New Zealand and Chile. New Zealand has about 1.3 million ha of plantations and 6 million ha of natural forest. In 1987, the New Zealand Forest Service was disbanded and its

commercial activities passed to a new state-owned enterprise — the New Zealand Forestry Corporation. The non-commercial functions were transferred to two new government departments: the Ministry of Forestry, which assumed responsibility for research, training, advisory and regulatory functions, and the Department of Conservation, which took over protection of the natural forests⁷. The Forestry Corporation was regarded as a stepping stone to privatization and it was decided that disposal of the assets should be done in stages. The transferable management rights to about a quarter of a million ha were sold in 1987 (not the land itself, in order to protect Maori land rights) and the unsold areas were grouped into three enterprises; more recently one of these enterprises has been disposed of on joint venture terms. The privatization strategy faces practical difficulties. It weakens the government's ability to ensure continuity of wood supply for forest industries and its commitment to sustainable management of the planted forest estate. It is not clear how much further the process will go.

Private ownership of forest resources is more extensive and fragmented in European countries than elsewhere. For example, 77 percent of the productive forest area in Norway is owned by individuals, various types of private common ownership account for a further 10 percent and only about 13 percent is in public ownership; the area owned by individuals consists of more than 118,000 holdings. 50 percent of the forests in Sweden are classed as private forests and a further 24 percent is owned by companies. Further south, nearly three quarters of the area of French forests and two thirds of Spanish forests are privately owned⁸. In some of the formerly communist Eastern and Central European countries (e.g. The Czech Republic), land seized by the state has been returned to private ownership. The functions of government ministries and departments which are engaged in overseeing private forestry activities, differ significantly from their role when their main task is to directly control and manage forests owned by the nation. Special legal requirements apply to private forest owners in most European countries, aimed at preventing destruction and encouraging good management of the forests. Finland and Sweden, for example, have forestry boards at national and local level, charged with the task of supervising and enforcing the forest law, and distributing loans and grants. France has 17 regional centres for promoting productivity and improving the structure of private forests.

In many developing countries, tree growing by local people has become an important concern (see Box 6.3), stimulated by the degradation and destruction of natural forests. It has led to communal forestry programmes on state- or community-owned land or on private land managed collectively, and to the widespread promotion of farm forestry. Various organizational arrangements have been developed to suit the situations in different countries. The government may be involved in either a participatory role or by providing support services or through financial incentives; it may work directly with villagers and farmers, assist cooperatives or collaborate with NGOs. Substantial international assistance has been channelled to such schemes in Nepal, India and East Africa. Generally, there has been a shift in emphasis away from centralised direction towards local control which has led to substantial (and sometimes painful) alteration of the way

Box 6.3 The changing role of forest departments in developing countries

“Forest Departments have historically been the organizations responsible for implementing forestry programmes. Characteristically, however, except for policing, protection and revenue collection, government forest departments have had little interaction with rural people in the past. Involvement of forestry services in rural and community development, agroforestry, extension and programmes for employment and income generation is generally new and requires different roles than those forestry departments were required to play. The change in emphasis required is one from executive to support functions.”

“In some cases, changes in the administrative structure of a forest department have been tried as a means of changing the negative rural perception of its role. In India, many of the state forest departments have added new and highly visible divisions for social forestry. In other cases, foresters may be attached to other services. In Senegal, foresters without uniforms and guns are attached to regional multidisciplinary development offices as well as to parastatal development organizations.”

“It is not uncommon that the responsibility for reforestation or for other rural forestry activities is shared among a number of public sector organizations. In Kenya, independent rural forestry activities are administered by the Ministry of the Environment and Natural Resources (through the Forest Department), by the Ministry of Agriculture and Livestock Development and by the Ministry of Energy and Regional Development. Although this approach has been effective for the most part, there is a danger that a lack of inter-ministerial coordination may result in a duplication of efforts.”

Source: FAO (1985), pages 97–8.

government forest departments are organised⁹. It has been accompanied by the growth of extension services, user groups, and the formation of cooperatives or other collaborative enterprises.

People who live in and around forests and are dependent on the continued existence of forest resources for their livelihoods and wellbeing are receiving more attention than formerly. The activities of shifting cultivators in tropical forests have been recognised for many years and their traditional land use practices have been adapted for reforestation purposes under the system known as ‘taungya’. It is now realised that forest-based communities have been powerless to stop deforestation, because their customary rights were either not recognised or expropriated, and unable to defend their traditional way of life because they lacked organization¹⁰. They have been marginalized, but NGOs have been formed in recent years to represent indigenous and tribal peoples’ interests and an international network of such groups has been set up. At the same time, respect has grown for their

Box 6.4 NGOs in the forestry sector

“In the forestry sector, NGOs offer distinctive perspectives, partly because they do not start with the concern for timber that dominates so many of the sector’s established institutions. Some NGOs focus on the environment and are active in forest protection because of the critical role forests play in ecosystem conservation. For other NGOs it is poverty — the plight of people obliged to eke out a subsistence living in or near the forest — that draws them into the forestry sector. Still others start with a concern for social justice, particularly for indigenous and other marginalized forest dwellers whose cultures and rights have been abused by the larger society.”

Source: Korten (1992), page 4.

traditional understanding of the forest and appreciation of the ecosystems on which they are dependent. There is now a Forest Peoples Charter aimed at securing their participation in management of the forests on which they depend. The movement started in the Amazon and other tropical countries but has spread to other parts of the world, such as Canada, and has become a human rights issue¹¹.

Non-government organizations (NGOs) play an increasingly important role in the forest sector (see Box 6.4). They are very diverse, but generally attempt to focus on issues that they believe have not been adequately addressed by government agencies or are avoided by commercial organizations. They vary in scope; they may be local, national or international. Some are profit-oriented and serve as public service contractors, others are non-profit organizations driven by a sense of values and a mission. Amongst the issues they have highlighted are people and wildlife, soil and water, sustainability and justice. Their roles include the questioning of long-held assumptions in the light of new realities, the development of new policies that respond to current needs and programme implementation in their areas of concern. They can disturb the forestry establishment by promoting public pressure through publicity, propaganda, boycotts and legal challenges. Traditional forestry institutions are being obliged to interact with this new group of players as their activities expand¹².

The increasing complexity of forest management, as it moves from traditional timber growing to wider concerns with non-wood products, environmental quality and sustainability, has led to outsourcing and consultancy services provided by individuals and small enterprises. They offer expertise across a range of disciplines, such as ecology, economics, planning and information technology, to private landowners, governments and international agencies engaged in forest sector activities. These enterprises are flexible and loosely organised, and can therefore respond quickly to a wide range of requests from different sources. They offer similar services to other sectors and facilitate the transfer of technology between the agencies that are involved in rural development.

The forest management subsector contains a varied assortment of organisations which undertake a variety of activities. They deal with forest resources which are valued for their diversity and provide many kinds of goods and services, coping with the problems associated with multi-purpose management. Public and private interests are mixed together and many of the outputs are public goods or lack market prices; government organizations in the subsector depend to a large extent on funds provided by taxpayers and the revenue that they are able to collect is often based on administered prices. Attempts to privatize forestry activities are beset with difficulties and simplistic attempts to increase organizational efficiency by allowing private enterprise to control forest resources, without safeguards for their unpriced outputs, are unlikely to provide long term, sustainable advantages for the general public.

Public ownership is less prominent in other subsectors. Their use of land is much less extensive and most of their activities are related to production rather than conservation or amenity. Market prices and market forces work better in relation to activities that provide goods that can be bought and sold than for the intangible outputs generated by the forest management subsector. Generally, governments are less involved in other subsectors and the role of public enterprise tends to diminish with movement along the subsector chain. The harvesting subsector includes some organisations under government control, but subsequent subsectors are dominated by private interests.

The harvesting subsector interacts directly with forest management and the organizations represented in Table 6.2 reflect the closeness of the relationship. The range of their activities depends on the nature of the forest. Industrial enterprises and informal peasant groups are included. Activities are often small-scale, mobile and widely-dispersed. Some of the people involved are tribal forest dwellers. Customary users of the forest tend to be poorly organized, although sometimes, particularly in developing countries, NGOs may represent their interests.

The harvesting subsector offers opportunities for small-scale enterprises. In Fiji, for example, 'landowner logging companies' have been promoted as a way for local communities to share more widely in the benefits from afforestation schemes by enabling them to undertake harvesting operations under contract. Similarly, resin tapping and the collection of other non-wood products provide opportunities to set up cooperatives and for other local group initiatives which provide advantages for their members.

Harvesting operations merge with primary processing at a rudimentary level through pitsawing, which is still practised in parts of East Africa to satisfy local needs. This involves felling trees, then rolling the logs over a pit and cutting them up by hand to obtain planks or scantlings which can be carried out of the forest. Harvesting and forest processing are also combined in the activities of partnerships or companies which operate mobile sawmills and woodchipping machines. The boundaries of the harvesting subsector are not always sharply defined.

Organizations engaged in forest management sometimes extend their activities into harvesting, as when government forest departments do their own felling and

Table 6.2 Organizations and interest groups in the harvesting subsector

Organization	Ownership	Primary purpose	Type of activity	Main beneficiaries
Logging companies	Private	Production	Timber felling, extraction and transport	Owners, sawmillers, timber users, employees
Enterprises supplying poles, fuelwood and charcoal	Private	Production	Cutting, preparation for sale and transport	Owners, fuel and pole users, employees
Operators of mobile mills and hand sawyers	Private	Production	Forest-based wood conversion	Rural communities, users, workers
Collectors of resins, gums, fruit, grasses, fungi and other non-wood products	Private	Production and amenity	Collection, preparation for sale and transport	Collectors, processors, consumers
Forest dwellers and other customary forest users	Private	Production	Collection for domestic use	Forest people and rural communities
Hunters	Private	Food production and sport	Hunting, game management	Rural communities, consumers
Graziers	Private	Livestock production	Obtaining fodder, herd management	Rural communities, consumers
NGOs concerned with traditional users' rights	Private	Protection	Representation, mutual support	Forest people and rural communities
Water authorities, water supply companies, hydro-electric power generators	Mixed	Water and power supply	Water collection, storage, treatment and abstraction	Users of water and electricity, public, employees

logging to reduce damage. From the other side, sawmilling firms may obtain felling licences or purchase standing timber which they also fell, extract and transport. Some of the largest industrial corporations in the forest sector are 'vertically integrated' and operate across subsector boundaries. They own or lease forest land, harvest it themselves, and then process the timber in their own mills. For convenience, they may set up separate logging units or subsidiary companies, but harvesting subsector activities in smaller enterprises are less likely to be organizationally differentiated in this way.

Water storage and abstraction is a specialized harvesting activity, carried out separately from watershed management, by either public or privately-owned organizations. Usually the provision of water supplies is regarded as a public service, but where privatization has been attempted, as in Britain, the water companies are regulated and their prices to consumers are controlled. Storage in reservoirs, whether for water supply purposes or power generation, may involve large-scale construction works and is capital intensive.

The primary processing subsector (see Table 6.2) is largely made up of privately owned enterprises. Technological differences, economies of scale and capital

Table 6.3 Organizations and interest groups in the primary processing subsector

Organization	Ownership	Primary purpose	Type of activity	Main beneficiaries
Ministry for industry & trade	Public	Public service	Policy & control	General public
Sawmillers	Private	Production	Conversion of logs to sawn timber	Owners, timber users, employees
Plywood and veneer manufacturers	Private	Production	Production of sheet veneers, plywood and blockboard	Owners, users of wood panels, employees
Particle board and fibreboard manufacturers	Private	Production	Production of panel products	Owners, users of panel products
Pulp and paper companies	Private	Production	Pulp and paper production	Owners, pulp and paper users, employees
Enterprises engaged in extracting and processing non-wood products	Private	Production	Processing of non-wood forest products	Rural communities, owners, consumers, employees
Timber preservation and kiln drying units	Private	Production	Timber treatment operations	Owners, timber users, consumers, employees
Organizations involved in recycling waste paper and other forest products	Private	Production	Collecting and reprocessing	Owners, users of recycled products, employees
Forest products research laboratories	Mixed	Research	Testing and investigation	Forest industries, consumers
Trade associations representing forest industries	Private	Provision of services	Promotion, lobbying and advice	Members
Trade unions representing employees in wood processing industries	Private	Provision of services	Negotiation and representation	Members

requirements determine the size of the organizational units. Sawmilling is usually carried out in relatively small establishments, which cost less to build and are less demanding from a technological point of view, than plywood or particle board manufacturing. Pulp and paper production needs large investments and big plants, which depend on international markets; consequently it tends to be concentrated in a few developed countries, such as Finland and Canada.

Non-wood products are very diverse and in many cases the type of processing required is relatively straightforward, consisting of sorting, grading and cleaning, purification, distillation of oils and other activities carried out in small plants at convenient locations.

Most of the raw material for primary processing comes from the forest in the form of logs, pulpwood, woodchips etc. However, there are also horizontal linkages

Table 6.4 Organizations in the secondary manufacturing, construction, distribution and trade subsectors

Organization	Ownership	Primary purpose	Type of activity	Main beneficiary
Secondary manufacturing				
Furniture manufacturers	Private	Production	Design and manufacture	Owners, workers consumers
Joinery, turnery and other timber fabrication firms	Private	Production	Machining and assembly	Owners, workers, consumers
Organizations engaged in further processing and manufacture of non-wood products	Private	Production	Secondary processing and manufacturing	Owners, workers, consumers
Trade associations and trade unions	Private	Provision of services	Promotion and representation	Members
Construction				
Enterprises engaged in building construction	Private	Production	Construction of buildings	Owners, workers, occupiers
Manufacturers of prefabricated housing and wooden buildings	Private	Production	Design and manufacture	Owners, workers, occupiers
Distribution & trade				
Timber merchants	Private	Trade	Wholesaling and retailing	Owners, workers, consumers
Importers and exporters of forest products	Private	International trade	Importing and exporting	Owners, workers, consumers
Transport companies	Private	Distribution	Transport	Owners, workers, consumers

within the subsector involving the utilization of waste materials or by-products. Thus, slabs and offcuts from sawmills are passed to board manufacturers and pulp and paper makers; similarly, the cores of logs left over after they have been peeled to make plywood can be utilized for sawn timber or turned into wood chips. Recycling of waste paper also provides an appreciable (and increasing) share of the input for paper-making. These transfers may occur between organizations, as when a sawmilling company sells its residues to a particle board manufacturer, or take place internally, between the parts of a large corporation which produces several types of forest product.

The secondary manufacturing subsector is made up of organizations which utilize the outputs from processing plants and subject them to further treatment or incorporate them in more sophisticated products (see Table 6.4). Thus, sawmills provide lumber which is transformed into mouldings or turnery products, and furniture

factories use sawn timber, veneers and plywood. Primary processing organizations often extend their activities and offer for sale 'finished' products such as kiln dried timber or tongue and groove boards, but operations which require more specialised machinery, such as lathes and presses, are likely to be carried out by separate firms sited closer to their markets. When wood, in one form or another, represents only part of the raw material input used by a manufacturing enterprise, as with leather, plastic and metal in furniture production, the different sorts of expertise required favour independent enterprises which are free to develop links outside the forest sector. Similarly with non-wood products, such as medicines derived from forest sources, which are manufactured by pharmaceutical companies.

Enterprises in the construction subsector also use inputs from primary processing, such as sawn timber and panel products. These are combined with various other types of building materials from other sectors. As with secondary manufacturing, only part of the output of the construction subsector is attributable to forest products. In fact the organizations represented in both these subsectors also contribute to economic activity in other sectors; they are members of more than one sector.

Some distribution and trade activities are undertaken by the same organizations that carry out harvesting, processing and manufacturing. Thus logging companies not only produce logs, but also sell and transport them; similarly sawmills often supply lumber directly to their main customers. There are also other firms which are trading organizations, specialising in the supply of forest products, who act as middlemen between producers and consumers. These specialised merchants may deal in unprocessed goods (such as poles and bamboo) as well as processed or manufactured articles. Often these organizations are engaged in international as well as domestic trade.

From an organizational point of view, subsector and sector boundaries are not significant. Companies seeking profits are likely to take advantage of business opportunities regardless of the subsector in which they arise. This may lead to *vertical* integration with a company operating in more than one subsector, or to *horizontal* integration in which a company grows by absorbing other organizations in the same subsector. Vertical integration may occur in a backward direction, as when a pulp and paper company buys forest land to secure future supplies of raw material, or a forward direction, when the same company extends into manufacturing and sells products made from paper and paperboard. The principal factors which determine company expansion are likely to be the expertise and capital available, the economies achieved by merging operations, and the aspirations of the managers or owners.

The more closely an organization's activities are concerned with forest resources, the greater its dependence on their sustainable management and the continued prosperity of the forest sector. Sector interests are dominant in organizations which operate entirely within the sector, whereas organizations which are also active in other sectors have divided loyalties. Multi-sectoral organizations, as found in the subsectors nearer to the consumer end of the supply chain, may pursue agendas which conflict with the best interests of the rest of the sector. This is more likely

to arise with large, diversified companies than with small enterprises and most likely with multinational corporations which have headquarters in other countries. It is important to recognize that a range of sectional interests is present in the forest sector, that the organizations which make up the sector may pull in different directions, and that agreement about what is best for the sector is likely to be difficult to achieve. The sector as a whole lacks coherence and seldom speaks with a single voice.

International Organizations

The organizational profiles of the subsectors represent the typical situation at national level. A country’s endowment of forest resources is the basis for a varied assortment of organizations connected with forest management, harvesting, processing, manufacturing and distribution. These organizations interact, but are also affected by external influences from other sectors inside the country and from international sources outside. At international level a different set of organizations is at work (see Fig. 6.1), some offering bilateral or multilateral aid, some engaged in world trade and some concerned with global humanitarian and environmental issues. They interact with the national organizations, but do not amount collectively to a structured entity at global level, comparable with the forest sector of a country. These international organizations represent various interests which seek to influence what happens in the forest sector, either generally or in particular countries.

At global level, forest resources and forestry matters are the concern of international agencies, such as the United Nations Food & Agriculture Organization (FAO) and the development banks. The Forestry Department of FAO is the lead agency, but several other UN organizations with wider responsibilities are also involved, in one way or another, with the forest sector, including UNEP (which runs the environment programme) and UNIDO (which promotes industrial development). The United Nations Conference on Environment and Development (UNCED), held at Rio de Janeiro in 1992, set out general principles for sustainable development;

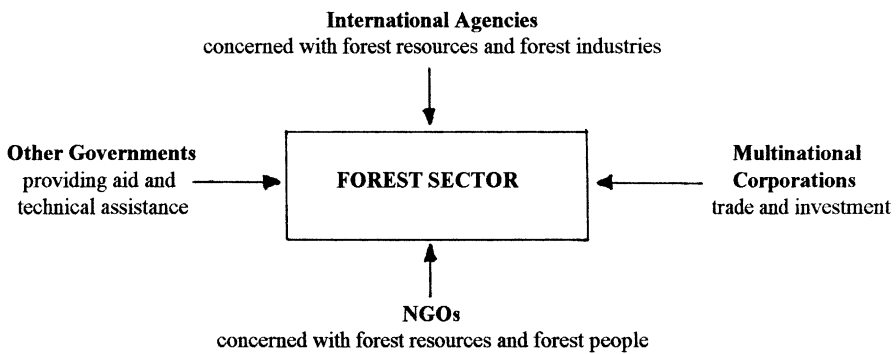


Figure 6.1 International influences on the forest sector

Agenda 21 provided an action plan to the year 2000. Forestry was the subject of a 'non-legally binding authoritative statement of principles for a global consensus on the management, conservation and sustainable development of all types of forest'¹³. The Rio Conference has had a major impact on world opinion and set standards for forest sector organizations to follow.

Regional organizations such as the European Union assist member countries but also provide multilateral assistance to others for forestry purposes. The governments of most developed nations have programmes of bilateral assistance for developing countries, from which forestry also benefits. Some of this aid is directed at organizational restructuring and capacity building. Trade in forest products is largely undertaken by companies, some of which extend their influence by investing in production facilities overseas. Trade interests also lie behind the work of the International Tropical Timber Organization (ITTO), an inter-governmental body which is actively promoting sustainable industrial use of tropical forests. NGOs at international level (e.g. The World Resources Institute) have become powerful, independent sources of analysis and critical interpretation of events in the forest sector, which have led to new policies and have altered the behaviour of organizations in the sector.

International influences on the forest sector are diverse and represent different interest groups. The influence of the UN agencies is mainly directed at sustainable forest development and the environmental consequences of deforestation; their attention is focussed particularly on forest resources and organizations in the forest management subsector. These issues are also the concern of the development banks and other aid providers, although the terms of bilateral assistance usually reflect the national interest of the country which supplies it. Commercial organizations normally expect a return on their investments, although they are also keen to appear public spirited. International NGOs, such as Friends of the Earth, represent pressure groups of various kinds, which tend to focus on specific issues, often relying on emotional appeals to their supporters and confrontational tactics to achieve their ends.

This review of the organizations in the forest sector has demonstrated the variety of interest groups which shape sectoral behaviour at both national and international levels. The sector is an association of many different kinds of organization, representing a varied assortment of interests; it is a collection of stakeholders. Some of the organizations are involved first and foremost in forest sector affairs, while others have wider concerns and shared allegiances. Some of the influences and interactions at work in the sector are strong, some are weak, and many of them are liable to change due to events beyond their control. Structurally, the sector is an organizational conglomerate which is held together by common interests.

In previous chapters the complexity of the forest sector was described. The sector is dependent on forest resources which vary according to climatic conditions, terrain and the species present. It supports many different kinds of activity, generating value, employment and trade, and produces a diverse range of outputs, both tangible and intangible. Corresponding complexity is evident in the organizational compo-

sition of the sector. The types of social groups represented and the extent of their interests are wide-ranging. Each organization has its own purpose, set of interests and internal structure, which influence its behaviour. Each of them contributes to the behaviour of the sector as a whole, which can only be fully understood in relation to the structure and behaviour of its parts.

Organization Theory

At this point it is appropriate to turn aside from the variety of organizations found in the sector and examine some general organizational features. The study of organizations and their behaviour progressed during the 20th century and now offers insights which can enhance our understanding of the forest sector. With their help it is possible to appreciate better both the working of its individual components and its behaviour as a loosely-structured, organizational entity with distinctive characteristics of its own. Organization theory may assist with the design and improvement of organizations, making them more efficient and better able to cope with change.

Whatever their size or the nature of their activities, all organizations have four factors in common¹⁴. These are the features on which organizational behaviour and effectiveness depend:-

- *people*, who interact with one another,
- *structure*, to channel and coordinate their interactions and efforts,
- *aims*, which the organization seeks to achieve,
- *management*, to direct and control the activities of the organization in pursuit of its aims.

The resources (natural, human and capital) that are available to an organization need to be combined and used effectively to achieve the best possible results. The management process integrates people, structure and aims, and controls the way resources are used. The outcome of the management process determines organizational success or failure.

An important distinction is made between formal and informal organization. These categories refer to the internal working of social groups. According to Buchanan and Huczynski¹⁵, *formal* organization refers to the collection of work groups that have been consciously designed by senior management to maximise efficiency and achieve organizational goals, while *informal* organization refers to the network of relationships that spontaneously establish themselves between members of the organization on the basis of their common interests and friendships. The informal component affects the working and efficiency of an organization. It has an important influence on morale, motivation, job satisfaction and performance. It can encourage members to use their initiative and creativity for the benefit of the organization or can impede it by covert and obstructive activities.

Organization theory depicts informal organization as a feature which occurs within the framework of the formal relationships in a company or agency as described in Box 6.5; the behaviour of the people in an organization is viewed

Box 6.5 Informal organization

“Within the formal structure an informal organisation will always be present. The informal organisation arises from the interaction of people working in the organization, their psychological and social needs, and the development of groups with their own relationships and norms of behaviour, irrespective of those defined within the formal structure.

- The informal organization is flexible and loosely structured.
- Relationships may be left undefined.
- Membership is spontaneous and with varying degrees of involvement.

Group relationships and norms of behaviour exist outside the official structure and the informal organisation may, therefore, be in conflict with the aims of the formal organisation.”

Source: Mullins (1996), page 72.

from two aspects — formal and informal — which exist side by side. No doubt this duality is present in the larger forest sector organizations, as it is in comparable organizations outside the sector. Forest departments and forest industry corporations have an elaborate formal structure and defined set of relationships governing their operations. The people working in them also become members of informal groups of various kinds, based on their personal relationships and social affiliations, and may occasionally be involved in trade disputes, go-slows or strikes. However, this formal/informal idea is less easily applied to many of the other, smaller interest groups in the forest sector, such as NGOs or members of participatory forestry schemes. These groups are usually loosely structured with ill-defined relationships. They are informal by nature.

It is more realistic to visualize the organizations in the forest sector along a scale running from highly organized to chaotic. Those at the highly organized end of the spectrum also contain informal groups, those towards the other end have more flexibility, operate by consensus, and have less need to formalize their structure and relationships. Only the larger, more elaborate organizations depend on discipline imposed by management to achieve their aims.

Seen as a whole, the forest sector of a country is a loosely structured conglomerate composed of organizations/interest groups of many kinds. It is not a highly organized entity and the organizations within it are not subject to obvious unified control. Like the informal groups within an industrial organization, the organizations and interest groups at the less highly organized end of the range may have divergent interests and may oppose the activities of the more highly organized agencies in the sector. As a unit, the forest sector usually lacks coherent direction and overall management. It has no discernable formal structure or arrangements for power-sharing and control. These factors add to the difficulty of achieving national development aims.

Generally, the formal structure of organizations varies according to their size, function and activities. Mullins¹⁶ relates structure to the process of management and describes it in the following way:-

“Structure is the pattern of relationships among positions in the organisation and among members of the organisation. The purpose of structure is the division of work among members of the organisation, and the coordination of their activities so that they are directed towards achieving the goals and objectives of the organisation. The structure defines tasks and responsibilities, work roles and relationships, and channels of communication.”

In small organizations, interpersonal relationships are simple, and the distribution of work, authority and responsibility can be arranged informally. With increasing size, the structure needs to be more carefully designed, purposeful and formal. Large organizations, particularly those with dispersed activities, rely heavily on internal information exchange and communications.

Structure differs from organization to organization to suit their particular circumstances and management styles. A variety of organizational forms is found in the forest sector, ranging from rudimentary, in small local enterprises managed by their owners, to complicated, as in corporations which may have several factories located in different places, making assorted products for sale in various markets. Government departments are bureaucracies, structured to conform with civil service regulations, while NGOs are loosely-structured, flexible and adaptable voluntary groups which depend on maintaining the sympathy and support of the public.

Organizations have layers within their structure which relate to levels of responsibility and authority. Mullins distinguishes three:-

- an *operational* or technical level, at which tasks are performed, work is done and services are provided,
- a *managerial* or organizational level, which deals with coordination and integration of the work at operational level,
- a *community* or institutional level, which is concerned with broad objectives and the work of the organization as a whole.

These levels are interrelated and the boundaries between them are often fuzzy. Typically, the effects of decisions at the institutional level permeate downwards to provide direction for the managerial level, which in turn controls operational activities. However, action taken at the work face sometimes restricts the choices open to managers and affects overall policy. Two-way communication is essential so that managers, when drawing up plans and supervising operations, can make use of the technical expertise and know-how of the people most closely concerned with the work. Similarly, if those at the institutional level lose touch with middle managers and operatives, misdirection, misunderstandings and loss of confidence are likely to result.

In practice, in small organizations, such as a family-run bush sawmill, the same people may do everything and functional specialization is minimal. Larger organizations engaged in processing and manufacturing, divide the work and resort to devices

such as job descriptions and organization charts to clarify employees' responsibilities and authority. The functions of the three levels — operations, coordination and overall direction — are necessary in all types of organization, but a stratified command structure to carry them out is not always desirable or required. Cooperative relationships may suffice in some organizations and collaboration between organizations is the only satisfactory basis for administering the forest sector as a whole.

Larger organizations are usually subdivided into sections, departments or even subsidiary companies; they are multi-layered. Each unit in the hierarchy has limited authority and responsibilities in accordance with general guidelines set from above. Units may carry out particular tasks, such as marketing, or undertake different stages in the productive process, such as machining or timber preservation. They may be located at different sites if operations are decentralized, or concentrated in one place to achieve economies of scale. Service organizations (e.g. forest management consultancies) may have branches to serve their clients and sales organizations (e.g. timber merchants) often set up networks of depots and warehouses.

Organization structure is very varied and is influenced by such factors as the objectives of the organization, the nature of its activities, the preferences of those in control, the environment in which it is operating, and its history. Past events are important because they create sets of interrelationships and establish behaviour patterns that are often difficult to change. The way that an organization has grown, the present location of its facilities, the kind of technology employed, its financial stability, its style of management and similar characteristics are all features that can restrict choice in relation to structural change. Structures evolve as situations alter and frequently are shaped more by force of circumstances than managers' intentions.

Part of this variety stems from differences in circumstances which lead to different organizational responses. Several factors are at work, which change over time. Organizational effectiveness is said to stem from the interaction between seven factors (see Fig. 6.2) for which a diagrammatic framework has been suggested by Waterman, Peters and Phillips¹⁷. The distinguishing characteristics of each organization depend on these factors and the way they interact.

There is no 'best' structure, which fits all organizations and all circumstances — no single, optimum solution to the problems of organizational design. This conclusion emerges clearly from many studies of organizations and the extensive literature about them that has become available. Organization theory started in the early part of the 20th century, in an industrial context, with the idea that there were common principles of good management applicable to all organizations. The early writers — Taylor, Fayol and Weber — thought of organizations in terms of their purpose and formal arrangements. Their approach was based on the belief that organizations were rational entities, that the design of organizations was a science and that people were economic beings, solely motivated by money. This, so-called, Classical approach was superseded in the 1930s by the Human Relations approach and in the 1960s by the Contingency approach (see Box 6.6). The former was a

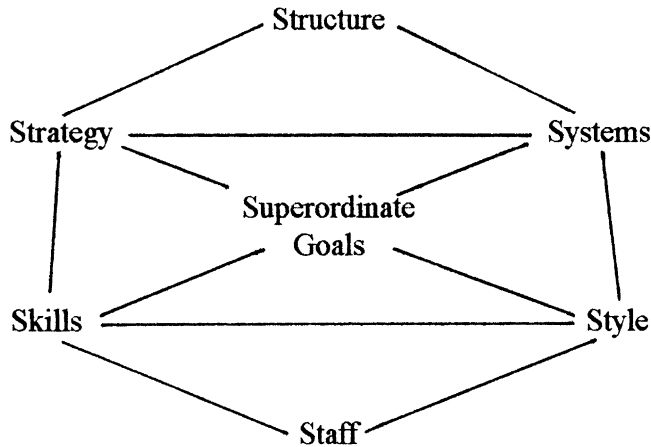


Figure 6.2 The 7-S Framework of organisational interactions

reaction against the mechanistic views of the early writers, the latter rejected the idea that there is a ‘one best way’ for all organizations¹⁸.

However, organizational circumstances are not the only formative influence. The forms which organizations take and their characteristics are also shaped by managers’ preconceptions. Gareth Morgan¹⁹ has pointed out that “all theories of organization are based on implicit images or metaphors that lead us to see, understand and manage organizations in distinctive yet partial ways”. He identifies eight such metaphors: organizations seen as (i)machines, (ii)organisms, (iii)brains, (iv)cultures, (v)political systems, (vi)psychic prisons, (vii)flux and transformation, and (viii)instruments of domination. The metaphors create insights, although they also have limitations. The mechanistic view belongs historically to the mechanical age and corresponds with the Classical school of thought. Organizations perceived as living systems, which adapt to suit their environment, are related to Contingency theory. Foresters, working in the bureaucratic environment of government forestry departments, have tended to think along classical lines and often fail to appreciate that their preconceptions are out of date. The need to allow for organizational learning (the ‘brains’ metaphor), the influence of organizational culture and the fact that organizations are intrinsically political, containing diverse and potentially conflicting interests which must be reconciled, are factors that foresters have been slow to recognise.

Recently, new insights have come from research and experience on both sides of the Atlantic. The design and management of organizations has moved from an ad hoc process based on guesswork to one that is highly complex. Burnes²⁰ refers to ‘paradigms’ — the sets of assumptions, theories and models that have emerged and become commonly accepted — in the field of management and organization theory. He points out that it has become difficult to apply and defend the old paradigms in today’s turbulent business world. The old preconceptions are breaking down and

Box 6.6 Features of the Human Relations and Contingency approaches to organization

“The main precepts of the Human Relations approach were almost diametrically opposed to those of the Classical approach. In particular it was argued that:

- *Man is an emotional rather than an economic-rational being* — human needs are far more diverse and complex than the one-dimensional image that Taylor and his fellow travellers conceded. People have emotional and social needs that can have more influence on their behaviour at work than financial incentives.
- *Organisations are co-operative, social systems rather than mechanical ones* — people seek to meet their emotional needs through the formation of informal but influential workplace social groups.
- *Organisations are composed of informal structures, rules and norms as well as formal practices and procedures* — these informal rules, patterns of behaviour and communications, status, norms and friendships are created by people to meet their own emotional needs. Because of this they can have more influence on individual behaviour and performance, and ultimately overall organisational performance, than the formal structure and control mechanisms laid down by management.”

“Contingency Theorists adopted a different perspective, based on the premise that organisations are open systems whose internal operation and effectiveness is dependent upon the particular situational variables they face at any one time, and that these vary from organisation to organisation. This is consistent with evidence that not all organisations — or even all successful ones — have the same structure, and also that even within organisations, different structural forms can be observed. Though many situational variables, such as the age of the organisation and its history, have been put forward as influential in determining structure, it is generally agreed that the three most important contingencies are as follows”:

- *Environmental uncertainty and dependence* — the management of any organisation is undertaken in circumstances of uncertainty and dependence, both of which change over time. Levels of uncertainty and dependence will vary, but can never be totally eliminated, and must therefore be taken into account, i.e. treated as a contingency, when designing organisational structures and procedures.
- *Technology* — Organisations creating and providing different products and services use different technologies. Given that these technologies can vary from large and expensive to relatively small and cheap, the form of organisation necessary to ensure their efficient operation will also vary.
- *Size* — The structure and practices necessary for the efficient and effective operations of small organisations are not suitable for larger ones. In the former case, centralised and personalised forms of control are claimed to be appropriate but as organisations grow in size, more decentralised and impersonal structures and practices become more appropriate.

Source: Burnes (1992) pages 28 and 40–42.

new forms of organization are emerging, which are remarkably different from most of the theory and practice that has gone before.

Organization theory has become more sophisticated as the variety of forms of organization has been revealed by research. There are no simple rules to determine how best to organize in any given situation. Companies operating in the same market are not all similarly structured. The culture and management style of organizations varies even though their functions appear to be similar. Firms in the same industry range in size from large to small. In public administration there are many ways of providing comparable government services, and the activities of ministries and departments may be centralized or dispersed. In the forest sector there are diverse solutions to apparently similar organizational problems. Forestry departments differ from country to country even though they provide the same services, and forest industries adopt a range of production systems to produce the same outputs.

The new techno-economic rationale has three main features: it is based on new information technology, more flexible production systems and greater integration. First, owing to more expensive energy and relatively cheaper information inputs, there is a shift towards information-intensive rather than energy-or materials-intensive products. Second, there is a change from dedicated mass production towards more flexible systems that can accommodate a wider range of products, smaller batches and more frequent design changes; 'just-in-time' manufacturing methods and 'total quality management' are cited as examples. 'Economies of scale' are being replaced by 'economies of scope'. Third, greater integration of functions and systems within companies and between suppliers and customers is taking place. This integration permits a more rapid response to customer requirements, whether this be in relation to quantities, product characteristics or new market opportunities.

These general features affect the organizations within the forest sector. New information possibilities, such as geographic information systems (GIS), are altering the way forest departments work. The trend towards greater flexibility is evident in forest management, which is expected to provide a wider range of tangible and intangible outputs than formerly, and in forest industries, which need to respond positively to changes in consumer preferences, such as the desire for wood from sustainable sources. Collaboration between organizations along the production chain is necessary in order to certify that the products reaching consumers have originated from well-managed forests. Production systems based on agroforestry and participatory forestry schemes require more responsive forms of organization than is provided by traditional forestry bureaucracies and large-scale industrial corporations are not easily adapted to the provision of small-scale, forest-based service outputs. New forms of organization are slowly emerging to meet the needs of the forest sector.

One of the leading thinkers on organizational matters is Charles Handy. He argues that change has become discontinuous and no longer part of a pattern. Discontinuous change calls for discontinuous thinking, which is liable to be confusing and disturbing. It calls for unorthodox organizational responses, suited to the

developments taking place in technology, work and employment. He distinguishes three new forms of organization, which have resulted from the adoption of less labour-intensive methods aided by clever machines²¹. The first of these generic forms he calls the *Shamrock* organization. Like the three leaves of a trefoil, this has three groups of workers with different functions and expectations: a small group of specialist, 'core' workers, a contractual fringe of semi-independent groups and individuals, and a flexible labour force. His second type is the *Federal* organization, which is an association made up of various individual groups or organizations allied together under a common flag with some shared identity. The third form of organization is the *Triple I*, based on **I**ntelligence, **I**nformation and **I**deas at the core; its success depends on knowledge and the ability to use that knowledge. These new forms rely on a culture of consent rather than command — agreement instead of orders. They are likely to dominate in the future, replacing traditional organizations which will either adapt to changing circumstances or wither away.

Generally, organizations in the forest sector are likely to become smaller, more flexible and less hierarchical. They will need to treat people as assets to be developed and motivated rather than liabilities which limit profits and progress. All three of Handy's emergent forms have a place in the sector. We can envisage forestry departments which fit the Shamrock description, each staffed by a small core of well-trained specialists, subcontracting non-essential services to outside organizations or consultants, and employing a mobile, flexible, skilled work force. This form is also suited to the needs of NGOs, eager to respond to opportunities to advance their members' interests, and private firms, striving to meet customers' requirements and competing demands in present-day world markets. The Triple I form of organization is applicable for the provision of specialized, technical services by small companies, such as forestry consultants; it is also appropriate at the core of other forest sector enterprises and to provide oversight, guidance and direction for development of the sector as a whole. The forest sector, which is a conglomerate, can only function as a Federal organization. No other form can adequately respect the rights, interests and responsibilities of member organizations brought together in a voluntary association.

6.2 THE INSTITUTIONAL FRAMEWORK

The organizational variety and complexity of the forest sector has been described in the previous section. In this section we examine the features which bind its disparate components together. Different interests are represented, sometimes in conflict with one another, but the sector as a whole is a loose association, which is characterised by its dependency on forest resources. The organizations in the sector have a common, long term interest in the protection and wise use of the forests which sustain them, even though their individual activities may deviate or run counter to it in the short term. This mutual interest justifies and underpins the institutional framework which binds the sector together and helps to make it a recognizable entity.

The framework consists of five groups of institutional features which enable the sector to operate in a coherent way. Each group is associated with a particular function or aspect of sectoral activities:-

- (i) the established laws, customs and practices, which regulate the activities of organizations in the sector,
- (ii) the policies and programmes relating to forest resources, activities and outputs, which give the sector a sense of direction and promote its development,
- (iii) the financial and economic arrangements by which resources are allocated,
- (iv) the arrangements for education, research and data handling, which assist organizations and individuals to acquire knowledge about the sector,
- (v) procedures which regularise relationships between groups, providing for participation, conflict resolution and leadership in sectoral affairs.

The characteristics of these groups are discussed individually in subsequent pages. They interact and complement each other. Taken together, when properly coordinated, they constitute an effective infrastructure for the sector and serve as the main means by which it can be managed and developed.

External factors impinge on the institutional framework, particularly policies and programmes in other sectors, and development of the sector may be curtailed by the flows of financial and other resources available from outside sources. Internationally, the framework is constrained by various conventions and agreements, which limit the scope of sectoral activities. Institutional support is provided, particularly in developing countries, from UN agencies and other sources of foreign aid. The framework provides the main route by which outside events and global changes can influence what happens in the sector and its future development.

The institutional infrastructure plays a key role in forest sector development. It can facilitate progress or hold it back. Harmonious relations between organizations may be encouraged or conflicts of interest may remain unresolved, leading to counter-productive effort which dissipates scarce resources. It can create fruitful opportunities, constructive attitudes and social harmony, or lead to squabbling over shares of the available resources, confrontation and tension. Communications within the sector are an important element. Participation and consultation are necessary ingredients, which help to foster a sense of 'togetherness' and establish a common purpose. Relations with other sectors and with the international community are largely determined by the institutional framework. It is therefore a target for intervention by those trying to further their own aims or, more disinterestedly, seeking to relieve poverty in third world countries, improve standards of living and safeguard the global environment.

Law, Custom and Practice

The institutional framework has a *regulatory* function, based on formal, legal enactments, which are made effective by decisions of the courts, and a range of informal rules or norms, established by society through tradition and everyday usage. Typically, legislation protects forests from destruction and regulates forest

Box 6.7 The role of the legislature

“Legislatures are the primary means by which modern democratic societies establish and maintain legal order, crystalize and settle conflicts, grant legitimacy to policies and programs, and adapt the existing rules of society to new conditions. Their staying power — they have existed for over 200 years in the United States — attests to their ability to aggregate diverse interests and to maintain a degree of consensus within society. To be sure, legislatures are only a part of the apparatus for making authoritative social decisions. In a variety of ways they share power and responsibility with chief executives, bureaucracies, courts, political parties, interest groups and the like. Time, place and leaders shape these relationships. If they so choose, legislatures may follow the lead of separate power centres, join with them, ignore them, pit one centre against another, or struggle against them. Legislative systems are fascinating political entities. They have much to do with policies and programs that are focussed on the use and management of the nation’s forests and related resources.”

Source: Ellefson (1992), page 207.

industries in the interests of society, while land tenure and usage often depend on local customs and traditional practice. Law, custom and practice interact and form a continuum, which confers legitimacy on the institutional framework.

The authority of the state is expressed through the primacy of the legislature in democracies. The legislative system is used in order to regulate forest sector activities and the organizations engaged in them. Laws are passed by the legislature, which apply to trees and forests, and establish the principles by which they should be safeguarded and managed. More detailed interpretation is normally provided by supplementary forest regulations, as permitted by the principal legislation, covering such things as fees, licences, protected species and management responsibilities. Regulations are frequently amplified by administrative instructions, issued by forestry departments and agencies. Laws, regulations and executive guidelines, taken together, supply the legal and administrative basis for the institutional framework.

Legislation, which is aimed primarily at other types of activity or sectors of the economy, often affects forest resources or influences the way they are managed, as with conservation legislation designed to protect wildlife and laws which control hunting. Similarly, laws intended to regulate industrial and commercial activities generally, may affect sawmills and other forest industries. All such legislation (including supplementary regulations and procedures) contributes to the institutional framework.

The legislature is responsible for making laws, but also has wider functions as Ellefson²² explains (see Box 6.7). Ultimately, what happens to the forest sector depends on the legislature, although much of its influence on events is derived from debate, inquiry and political pressure rather than legal sanctions. It can confer or withhold legitimacy.

Land tenure and the rights of people to use forest land for various purposes, whether formally recognised in law or not, form part of the institutional framework. Ownership of forests seldom confers unfettered rights to use of the land. Owners' property rights sometimes include the soils and rocks on which the trees are growing, and may extend to minerals or the right to extract water, but this is not necessarily the case; rights to harvest timber are often sold or leased separately from the land. In one way or another, the rights of owners are frequently limited. Thus the New Forest and the Forest of Dean in Britain, which were formerly royal hunting preserves, are subject to local grazing and mining rights; similarly, in Lithuania, there is a general right of public access to all forests more than 100 m from homesteads and anyone can collect fruit and mushrooms in them, even if they are private property. Forest managers must respect these rights and adapt their methods to suit the local circumstances.

It has been suggested that private property rights have evolved from a primitive regime in which no property exists. As demands on resources grow, users begin to interfere with each other's production unless they develop ways of allocating scarce resources among themselves; this leads to private property. When a resource is abundant relative to the demands on it, so that its value is low, the system of users' rights remains crude; but as resource values rise, more sophisticated systems of property rights are likely to emerge. The history of forest resources development in Canada is said to fit this theory well²³. The first European settlers found more than enough fish, timber, water and wildlife for everyone. As the population and the economy grew, land was first appropriated for settlements and agriculture, exclusive rights to minerals and timber followed, and rights to fisheries, wildlife and water are still being worked out. The early settlers acquired freehold forest lands; tenure is now conferred by means of long-term management agreements which confer rights to harvest timber in return for responsibilities for managing and developing the forests, and payment of stumpage fees to the state. Property rights, other than the land itself, have become stratified, so that the same area may be covered by separate rights to minerals, water, timber, hunting etc.

In the Third World, land usage is undergoing drastic change as the pressure on natural resources increases (see Box 6.8). Governments have not always respected customary rights to forest use by indigenous tribal people, whose way of life and even survival frequently depend on the forests. Subsistence agriculture based on shifting cultivation is still practised in the tropics²⁴ and forests have been widely regarded as common property, used to sustain agriculture and the rural household economy²⁵. However, traditional practices are breaking down and becoming unsustainable as more permanent agricultural systems are developed and the area of forest shrinks.

The laws, customs and practice, on which the institutional framework of the forest sector is based, evolve in response to events occurring outside the sector and changing attitudes among legislators and the public. Forest legislation requires revision from time to time, to accord with shifts in public policy and to meet

Box 6.8 The decline of off-farm tree resources in the tropics

“In most parts of the developing world, rural households have historically obtained most of the complimentary inputs of fodder, fuel, green mulch, food and saleable commodities that are often critical to the continued functioning of their agricultural systems from nearby areas of forest, woodland or scrubland that were used as common property. However, nearly everywhere these resources, and their management and use systems, have been progressively eroded and undermined as a result of a long period of political, economic and physical changes.

State assertion of control first over the forest resource and then over the land has widely reduced access and rights of usage. At best people were left with usufruct rights, application of which was subject to the whim of the State and its officials. In recent times the reduction in availability of common property resources has nearly everywhere been massively accelerated. Privatization and encroachment, as well as government appropriation, have been the main processes taking resources out of common use. Increasing pressures on what is left have frequently led to its progressive degradation.

Concurrently, traditional methods of access control, usufruct allocation, and conflict resolution have become widely ineffective or have disappeared, undermined by political, economic and social changes within the village and nation. Increasing population pressure and in-migration of outsiders, greater commercialization of the products of the resource, and technological changes that encourage alternative uses of the land, have all contributed to increased differentiation within communities that reduces communal cohesion and uniformity of interest in the management of communal resources.”

Source: Arnold (1997), page 6.

changing demands on forest resources. Harmonization with other laws, particularly conservation legislation, becomes necessary. International affairs also stimulate revision of official policy and procedures, as with the sustainability and biodiversity commitments entered into by many countries following the 1992 UNCED Conference at Rio. The regulatory infrastructure which supports the sector has a dynamic dimension and needs to be kept up-to-date.

Policy and Programmes

The second function of the institutional framework is *directional*. This is concerned with the route that forest sector development should follow and the form that it should take in future years. The forest sector needs to be steered if its activities and outputs are not to be haphazard and unsustainable. The desired direction is imparted by means of policy and programmes. It involves identifying the strategic aims to be

pursued and the means by which those aims are to be achieved. Policy statements are prepared to define the objectives and provide guidance for their implementation; plans and programmes describe the action to be taken, their timing and costs.

The intentions of governments in relation to the forest sector are expressed in formal declarations of national forest policy and can also be inferred indirectly from legislation, administrative decisions and the activities of ministries and departments responsible for forestry affairs²⁶. The contents of plans and programmes reveal the specific achievements that are intended. Not all countries have issued policy statements, but it is possible to discover their forest policy from these other sources. A formal declaration is not essential, although managing without one is a disadvantage because it creates uncertainty about the precise aims and leaves room for doubt about the extent of the government commitment to those aims. Policy statements are advocated to overcome these difficulties and also to provide guidelines for action by the organizations which carry out the policy. Decisions about resource allocation, priorities and budgets are simplified if there is a clear statement of policy and confusion can be avoided about the particular roles and responsibilities of organizations in the sector. Many countries which lack policy statements, such as the former communist countries in Eastern Europe, are taking steps to remedy this deficiency.

In the British Commonwealth, the importance of having a written statement of forest policy has been recognised for many years²⁷. The first resolution of the first (Empire) Forestry Conference, held in 1920, advocated that each government "should lay down a definite forest policy to be administered by a properly constituted and adequate forest service". Three reasons for this were stated: first, people should know what the policy is, second, for the sake of other government departments, and third for the sake of forest officers guidance. Delegates to the Conference envisaged a policy declaration as a precondition to be met before legislation was enacted and to enable forest land to be adequately protected. At that time no adequate forest legislation or competent forest authority existed in many countries and, to put matters right, the delegates sought to obtain from their governments public affirmations which could not be easily evaded. This approach to policy-making, which has been called the *manifesto* approach, led to similar official policy statements in most of the countries which now make up the Commonwealth. Typically, each statement consisted of a catalogue of aims intended to safeguard the forest resources of the country concerned, without indicating priorities or the way that the policy should be implemented. The resolution established a pattern, which has continued after the countries became independent nations. Policies of the manifesto type, sometimes with little modification since they were first formulated, remain in force in many places.

Policy-making is now generally perceived as a *process* rather than a one-off declaration of intent. The process approach is based on a continuous sequence of stages. There are various versions, but all are based on what might be called the three A cycle: Analysis leading to Aims, followed by Action. The process consists of a rational series of steps to decide what to do and how to do it; action

produces results after which the sequence is repeated. In relation to the forest sector, Merlo & Paveri²⁸ provide a recent example, showing a five-phase process accompanied by evaluation and revision. Ellefson²⁹ puts the process into a public policy context, starting with agenda setting, followed by formulation of policy alternatives, legitimization of the chosen aim and its subsequent implementation.

The first three phases are collectively known as 'forest policy formation'. They are procedural stages, which do not necessarily involve formulation of a manifesto type policy declaration. A statement of forest policy may be useful for legislative, administrative or public relations purposes, but is not an essential step in the process. Furthermore, there is no reason why policy statements for these purposes should be limited to definitions of aims, as is customary; they would be more useful if they also explained how the policy objectives were to be achieved. The link between aims and action needs to be emphasised.

In the policy process, decisions about the courses of action are followed by the implementation phase. This is the stage at which plans and programmes are drawn up. It is succeeded by the monitoring phase, which leads back to a new analysis of problems, the start of another cycle and revision of the policy. The process is described as 'rational, systematic and continuous' and has been widely applied, particularly by FAO, for National Forest Programme (NFP) preparation. However, the results of these country programmes have often been disappointing. Deforestation and degradation have continued, particularly in tropical countries, and sustainable resource management often remains wishful thinking. In practice, there has been a widespread discrepancy between policy formation and its implementation, which is referred to as 'policy failure'.

Merlo & Paveri attribute policy failure to inadequate attention, when plans and programmes are prepared, to the 'policy tools' that should be used. Forest policy tools are at the heart of the policy process, as shown in Fig. 6.3. They consist of

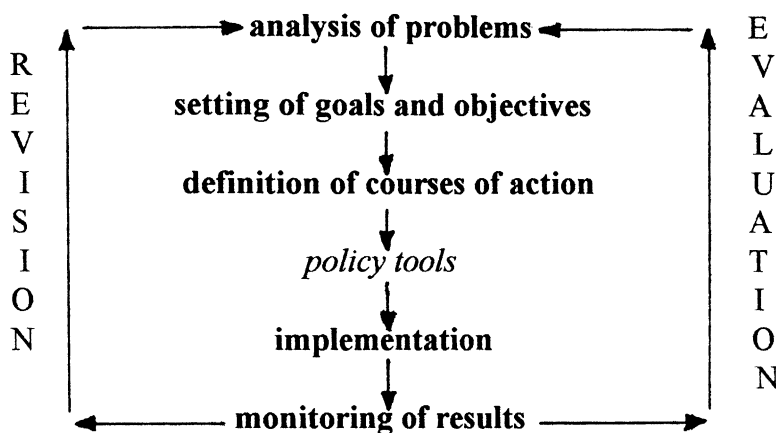


Figure 6.3 The policy process (Source: Merlo & Paveri, 1997)

various institutional means, juridical, financial/economic and market-based, which are available to policy makers. They include regulations and property rights, taxes and subsidies, prices, tariffs and negotiated agreements. Some are mandatory, some are voluntary and some complement the effects of others. Tools are frequently used in combination. Therefore, it is necessary to select not only those which are suitable, but also the appropriate mix of tools for the purposes of the policy. The choice will, of course, depend on having, or building up, sufficient administrative capacity to apply the tools that are selected.

Plans and programmes describe the means of implementation in detail. Strategic aims, which indicate the general direction of change and development for the sector, need to be converted into more precise specifications. Subprogrammes need to be elaborated, particular projects identified and their operational details worked out. A breakdown of the activities is required so that each can be costed, included in the budget and the necessary resources allocated. Schedules need to be prepared showing the duration of each stage of the work and the timing of events. The achievement of national aspirations depends on the success of field operations; progress is measured against the regional and local targets set by the programmes.

National forest policies are generally interpreted and focussed by means of national plans/programmes. There has been a considerable advance in the methodology employed to prepare these documents during the last three decades. Starting with the international impetus derived from the Tropical Forestry Action Plan and various forestry sector planning exercises by the World Bank in the early 1980s, countries began to produce 'action plans' or 'master plans' covering the forest sector (e.g. the Nepal Master Plan reviewed by Gane, Thorud and Watt in 1988). International aid for these was provided from bilateral and multilateral sources and usually the plans were donor driven. From about 1990 onwards the plans have been oriented more towards recipient countries' needs and aspirations. They have also been called 'programmes' rather than 'plans', to reflect the long-term, continuing nature of forest sector development. International guidelines recommend national forest programme (NFP) preparation be based on a strategic review of the forest sector³⁰. The aims are thus linked to the action through the policy process (see Box 6.9).

The directional function of the institutional framework includes both policy and programmes. It deals with two types of questions relating to the forest sector: the 'what' and the 'how' of sectoral development. The policy element refers to the aims and objectives; it defines the purposes of development and the achievements that are hoped for; it seeks to answer the 'what' question. The programmes element specifies the way forward that has been chosen, the action to be taken and the means to be used; it responds to the 'how' question. These questions are interrelated because the choice of aims is influenced by the means available for their achievement and the choice of means depends on the aims to be pursued. The aims should be realistic and the action should be purposeful. The policy process is intended to reconcile these aspects.

Box 6.9 The National Forest Programme Approach

- “National Forest Programmes follow a participatory planning and implementation approach that encourages the involvement of all forest-dependent actors at local, national and global levels and the development of a partnership between all stakeholders, emphasizing national sovereignty with regard to the management of forest resources and the need for country leadership and responsibility.
 - As a framework for planning, the National Forest Programme provides strategic orientation for the forestry sector, in harmony with other sectors of the national economy.
 - As a framework for action, the National Forest Programme provides an environment for the concerted and coordinated implementation of programmes and activities by all stakeholders based on mutually agreed objectives and strategies.
- The National Forest Programme approach is flexible and can be adapted to a wide range of situations. Although originally devised for tropical countries and national level planning and implementation, the basic principles and operational guidelines of the National Forest Programme can be applied to all kinds of forests and at various levels: national, international and sub-national.”

Source: FAO (1996), page 13.

Administrative arrangements are necessary to support all phases of the policy process. These arrangements form part of the institutional framework. The framework should provide for strategic review of the sector, facilitate policy formulation and include procedures that allow for participation by stakeholders and the public when programmes are drawn up and revised.

Financial and Economic Arrangements

The third institutional function is *allocative*. It concerns the arrangements for maintaining the momentum of forest sector activities, supplying resources to keep them going and distributing the benefits. The sector has a financial and economic infrastructure, which includes budgeting and allocation of funds, the preparation of economic appraisals, provision of incentives and subsidies, and market intervention by means of prices, tariffs, trade restrictions and international agreements. The institutional framework utilizes a range of policy tools. It also has to grapple with allocative difficulties caused by distorted prices and some intangible outputs, such as biodiversity, which have no market prices.

Forest sector activities depend on input and output flows. The values of these flows are shown in budgets, which provide the main means of allocating and

controlling expenditure. In commercial enterprises, such as sawmills, the productive process is sustained by inputs of roundwood, labour and other factors of production, which are bought and paid for with the income obtained from sales of goods and services. Provided that an enterprise breaks even, the cost of the inputs is covered by the cash flow from sales. In theory, inputs are allocated according to their marginal costs and outputs are distributed amongst customers according to their willingness to pay. In practice, managers use budgets to control expenditure on resources and attempt to increase net income over time by investments which increase productivity. Non-commercial organizations, such as NGOs, whose main aim is not profit maximization, also budget to match their outgoings to their expected income. Forest departments and other public sector organizations compete for funds as part of an allocative process based on estimates of government revenue and expenditure. The national budget reflects social and political priorities; forest department budgets reflect forest sector priorities. Budgets are used by organizations throughout the sector to manage their resources. They form an important part of the institutional framework.

Resource allocation within the forest sector is influenced by national policy and plans. The annual round of budget preparation and approval, which all government departments undertake, assigns expenditure to meet short-term, operational needs. Government development budgets and national plans are designed to stimulate investment in the longer term; usually prepared at five yearly intervals, they indicate priorities for using the resources that are expected to become available during the plan period. Priorities for annual budget preparation come from the national plans, based on their medium to long-term projections. Directional guidance for the forest sector is supplied by the sector strategy and NFP in countries where these exist. National development budgets and plans usually contain provision for government investment in forestry projects, corresponding with the proposals in the NFP. The arrangements for both recurrent and development budget preparation form part of the institutional framework of the forest sector.

The institutional framework also needs the capacity and expertise to process investment proposals. Particular projects normally undergo detailed investigation at the design and approval stages. Project planning includes financial and economic appraisal to determine the viability and compare the merits of alternative methods and scale of operations. Specialized skills are required, including supply and demand forecasting, cost-benefit analysis, scheduling, monitoring and evaluation. In developing countries, where overseas aid is involved, such analysis is normally a prerequisite of donors and project preparation is often a lengthy, drawn out process. These functions are best carried out at forest sector level by small planning units set up to deal with forest project and NFP preparation.

Resource allocation in the forest sector depends partly on commercial considerations based on profitability and partly on expenditure plans that are intended to procure wider benefits for the community. Several factors affect the balance between these two influences. They include the nature of the country's forest resources, the proportion of forest in public ownership, the relative importance of forest

sector activities which are controlled by private interests, and the value attached to non-market benefits by the community. Public sensitivity to environmental quality issues has increased. Forest managers tend to spend relatively less money on timber production than formerly and pay more attention to activities which result in non-wood outputs and intangible benefits. Resources are being channelled away from production that generates revenue, towards financially unprofitable activities that need to be subsidized. This trend increases the financial burden on the public purse. For example, the response to emotive appeals to stop deforestation or safeguard the habitat of endangered species is usually based on government action. Private interests, unaided, have neither the money or the capability to tackle such problems. Environmental outputs, regardless of their social value, tend to add to the flow of costs without any corresponding increase in revenue. The sector's financial and economic infrastructure has to cope with this imbalance.

The benefits of managing forests to meet environmental objectives are very difficult to value. Subjective judgements are involved and assumptions about peoples' future preferences that are difficult to substantiate. In an ideal situation, resource allocation decisions would balance supply and demand for each output over time, to achieve sustainability and produce the mix of outputs that society prefers. Then, if a price could be put on every output, it would not be possible to increase the total value to society of all outputs combined by altering the quantity of any one of the outputs or changing the pattern of resource use. However, the achievement of such an optimum in the forest sector is well nigh impossible. Some outputs have no market prices (eg. scenery) and can only be valued indirectly, using surrogate methods and assumptions about people's willingness to pay, while others are supplied jointly, so that increasing the supply of one (e.g. timber) alters the output of others (reduced biodiversity and increased carbon sequestration). Market prices are frequently distorted due to monopoly, monopsony or regulation by governments. The pattern of resource allocation is therefore the result of estimates, compromises and market imperfections. Furthermore, as has been pointed out, allocation is controlled indirectly, as the result of financial decisions made through budgets. At best, the financial and economic arrangements lead to imperfect allocation, at worst, resource allocation is arbitrary.

The institutional framework makes use of various policy tools in order to overcome allocation difficulties caused by the imbalance between financial outlays and receipts. They include a range of measures intended to make forestry activities financially more attractive, such as planting and tending grants, or to compensate private owners who are obliged to protect particular species or habitats. Incentives, such as tax 'holidays' or tariff reductions, may be offered to encourage environmentally beneficial activities, or financial penalties imposed for damaging or polluting the environment. In some cases, special funds may be earmarked for forest conservation and development activities, with support from foreign donors, or governments may be able to draw on international assistance to support particular projects which meet global concerns, such as biodiversity or climate amelioration. Policy instru-

ments are frequently used in combination and the mix of financial/economic with legal, or other methods is often critical to successful implementation.

Education, Research and Data Handling

The institutional framework's fourth aspect is information-based and may be called the *knowledge* function. It relates to the acquisition of knowledge and the way it is communicated and stored. The knowledge function underpins development of the sector's human resources. It includes the provision of formal education and training for personnel employed in the forest sector and informal arrangements to meet the learning needs of other groups of people who are involved in one way or another in sectoral affairs. The acquisition of new knowledge by investigation and research, and the transfer of existing scientific and technological information from elsewhere are also covered. Arrangements for information storage in libraries, record systems and data bases are necessary, with appropriate access facilities for both specialists and the general public.

The sector's human resource needs can be portrayed as a pyramid³¹ (see Fig. 6.4). Its broad base is made up of relatively numerous, semi-skilled and skilled workers, the middle layers consist of smaller numbers of technicians and subprofessional employees, and the upper levels contain relatively fewer personnel with university degrees and postgraduate qualifications. The composition of the pyramid, and its shape, varies according to circumstances; each country has a different balance of needs, which alters with time. Each level in the pyramid merits appropriate educational arrangements. The institutional framework should aim to provide education and training facilities, of a suitable kind, sufficient to cater for the numbers required at each level. Sometimes the needs of workers near the base of the pyramid get

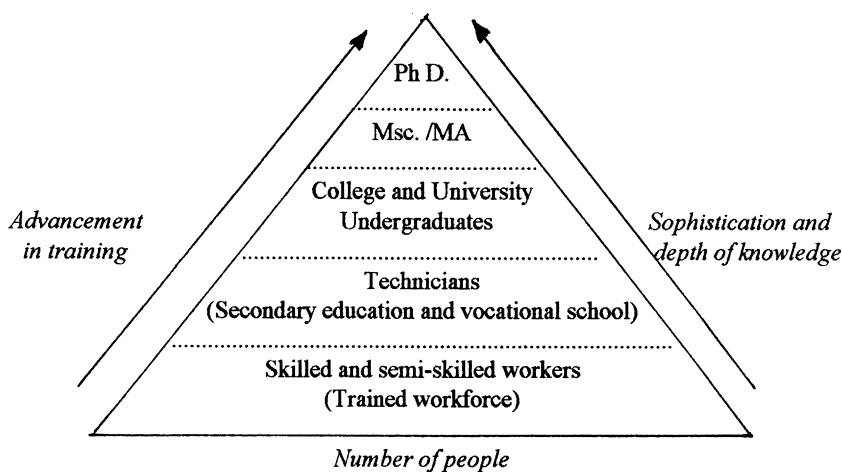


Figure 6.4 Investing in people: ideal human resource development pyramid (Source: Guevara, 1997).

overlooked, but all levels are indispensable and the framework should address the task of developing human resources for the whole sector. A suitable mixture of facilities is desirable, balanced to suit the situation, although the best blend may be difficult to achieve in practice.

It is important to perceive education and training as an investment which produces returns. Improvements in skills and knowledge add to the stock of human capital, enhance the economic prospects and welfare of poor people, and increase the capacity of the sector to supply outputs of all kinds for the community. The allocation of resources to this part of the institutional framework is justified by its results. In the long run, the knowledge possessed by the people and organizations in the sector, their ability to learn and willingness to adapt, determine how well the sector performs and its future development possibilities.

Education is required at the professional level, to produce foresters, ecologists, engineers, technologists and managers. The higher echelons in the civil service and senior management in private sector corporations are normally occupied by personnel with degree-level educational qualifications. In most countries, higher education is supported by the government and courses are provided to improve the general level of education and meet the needs of particular sectors, the forest sector included. University departments and colleges that specialise in rural affairs offer forestry courses, while graduates in other disciplines, such as biology and engineering, put their specialised knowledge to work in forest sector activities. Students are required to study for three or more years, so that there is a time lag before the educational system can respond to increases in the demand for graduates. To ensure that the higher education system produces an adequate flow of the right sort of trained people, some attempt to anticipate future requirements is necessary, even if precise numbers are difficult to predict.

Education and training at the sub-professional level and for workers, such as fire crews and machine operators, is usually less lengthy. It is provided either through special training courses or by on-the-job instruction. As with professional training, one of the important functions of the institutional framework is to provide courses and opportunities to build up and maintain the expertise that is essential for forest sector operations and activities. The sector depends on the quality of its work force and its practical skills, which will decline if not supported by adequate initial training and regular updating.

The role of educational institutions is changing. Formerly, universities and colleges were mainly concerned with preparing young people for their subsequent careers; what happened after that was seen as the responsibility of employers. This perception has been replaced by a more dynamic approach, based on lifetime learning, which seeks to update student's knowledge throughout their careers and provide opportunities for further study and additional qualifications. It is necessary to transmit new information, research results and a broad range of subject matter to enrich the sector's human capital resources. Educational establishments have extended their activities to provide in-service training and refresher courses. There has also been a marked growth of post-graduate courses and opportunities for further

education. Access to new information technology and the world-wide-web adds another dimension by enabling people to obtain information from global sources while studying from home at their own pace. Continuing education is being woven into the fabric of peoples lives, whether they work in the field or in factories.

The content of forestry courses is also changing in response to the challenges and opportunities which face the profession, although there is much room for improvement. Roche³² has pointed out that forestry, in both the developing and developed world, is attracting unprecedented public attention and, "at a superficial, journalistic level", foresters are being unfairly criticised for deforestation and environmental degradation. He fears a loss of confidence, which the institutions responsible for education and training must confront by strengthening technical and professional competence. As with professions such as medicine and engineering, there are consistent principles which apply in all parts of the world. These are based on the range of scientific disciplines required to manage forest land to obtain multiple outputs (not only timber) in perpetuity and an interdisciplinary approach that views trees and woody vegetation in a rural land use context. Batchelor degree courses need revision to bring them up to date, but the false dichotomy between 'social' and 'production' forestry that has grown up, largely as a response to tropical deforestation, does not justify a plethora of fashionable new courses or overloading curricula with diverse, extra sociological topics. A minimum set of core subjects should be taught, sufficient to instill professional competence in all situations, wherever the country and whatever the clime, and to provide enough familiarity with other disciplines to enable foresters to work with others.

The educational needs of foresters can no longer be subservient to timber production; forest management has to tackle the problems associated with other tangible and intangible outputs, and of combining multiple outputs in optimum proportions. Interactions with other sectors need to be understood before their effects can be moderated. A broader and more open-minded approach to problem-solving needs to be demonstrated and instilled as part of the educational process if foresters are to justify their place in rural development. It is also necessary to break the traditional, bureaucratic mind-set of foresters employed in state forestry, who are in danger of being sidelined because of their lack of appreciation of alternative organizational models which are better suited to dynamic conditions in the modern world. These are the conditions in which the educational portion of the sector's institutional framework has to operate.

Education and training transmit existing knowledge and skills from one generation to the next. They are also concerned with disseminating new information about the sector, both internally and to the general public. News of relevant scientific discoveries and technological advances may come from abroad, research may produce useful information that can be applied in the sector and new insights may be derived from practical experience. The interpretation of such information to make it intelligible, and its spread amongst those able to make use of it are important tasks. The underlying objective of ordering, digesting and passing on the accumu-

lated stock of knowledge about the forest sector remains the primary educational function, which the institutional framework should address.

Research generates new knowledge and technology transfer applies existing ideas and know-how in fresh situations. Both activities contribute to sector development and suitable administrative arrangements for carrying them out are a necessary part of the institutional infrastructure. Initiatives may come from government or private sources, but many studies in the forestry sector bring no direct commercial benefits and depend on finance provided by the state. Opportunities for research and development, which may directly benefit particular organizations or indirectly contribute to sectoral performance, require assessment to avoid wasteful expenditure. It is desirable that worthwhile proposals should be thoroughly investigated from a sectoral point of view, both as to their financial profitability and the economic benefits that may accrue to society. Project priorities can then be assigned and a balanced programme prepared, covering all aspects of sectoral activity. Research and development needs to be planned and implementation of the plans calls for collaborative action under government leadership. Most forest research aimed at environmental benefits will need to be undertaken by public sector institutions because it has no payoff for the private sector, while studies aimed at increasing productivity in timber growing, harvesting and processing are more likely to attract investment from private sources. The institutional arrangements for coordinating the research efforts of forest sector organizations should cover both the investigations and the subsequent take-up of their results.

As with education and training, the content of research programmes in the forest sector is changing (see Box 6.10). It has been argued³³ that the need is for “more and different forestry research” as the world moves towards a knowledge-based society and a globalized economy; countries that invest heavily in education, science and technology are more likely to make rapid economic progress than those that do not. Forestry research tends to be underfunded compared with agriculture and is often misdirected. More resources are needed to strengthen national and international research capacity. Different types of research are required to answer the new questions now being posed. These include investigation of the extra-sectoral interactions which affects forest resources, such as the effects of agricultural, infrastructure and trade policies, and to how best to deal with the ecological and social problems related to multipurpose forest management, such as the sustainability of particular species and the survival of communities of forest-dependent people.

These changes come at a time when the finance available from national and international sources is stagnating or declining. The pressures for economic efficiency and competitiveness are reducing the resources available to state forest agencies and in some cases the management of forests for timber is being transferred to the private sector. The institutional arrangements for forest research are affected, with responsibility tending to pass to the private sector for research directed at productivity enhancement, biotechnology, harvesting and processing, while investigation of environmental and social issues is left to the state. The need for research into

Box 6.10 Changing expectations from forestry research

“...there is also a widely perceived need to change the culture of science as applied to forests. In the past, most forestry research was carried out by public sector forest research institutes whose primary mandate was the national forest estate. The normal scale at which research was conducted was the management unit or forest stand. Foresters did not in general look outside the limits of the forest that was allocated to their state forest service. Much of research was concerned with improving productivity for timber — genetic improvement of trees, site management, silvicultural treatments, and inventory and monitoring of forest stands. If there is a world forest crisis, it is not so much a crisis of declining supply of industrial raw materials, as one of declining supplies of environmental services and of forest products essential to the still-marginalised populations of less developed countries.”

“In the past, forest research has generally been poorly linked to research on social, economic and ecological issues relating to forests. This must change if we are to achieve a holistic understanding of the role of forests in society, as the basis for sustainable management. Many of the problems facing forest science can only be adequately understood and addressed by adopting an inter-disciplinary approach that combines methodologies from the social and biological sciences, including economics, geography, political science and sociology, in whatever combination each problem can be addressed most effectively.”

Source: Byron & Sayer (1999).

international issues, such as climate change, is leading to collaborative programmes under international leadership and cooperation across national boundaries.

Research organization and methods are also affected by the impact of modern information technology on data storage, retrieval and transmission. It is possible to handle much larger quantities of data than in the past with the aid of computers and to carry out detailed spatial analysis using satellite imagery and GIS. Communications via e-mail and the internet are revolutionizing the availability of information and its transmission generally, not only for exchanging technical data between research workers in different parts of the world, but also for any members of the public who wish to take advantage of the new availability of knowledge. Information technology has the potential to produce a more open society, which is less easily manipulated by vested interests and those in positions of power.

Participation, Conflicts and Leadership

The fifth function of the institutional framework is *relational*. It is necessary to regularise relationships between stakeholders (i.e. those with influence on sectoral

development) by providing arrangements for effective participation in sectoral affairs, maintain harmony between organizations and interest groups, and provide effective leadership to stimulate and guide sectoral development. Without participation, there will be no sense of mutual advantage or common purpose amongst the various groups; without harmony, their efforts are liable to be dissipated by internal squabbling; without leadership, progress in the sector is likely to be haphazard and fragmented. Formal or informal procedures, which are designed to facilitate these three aspects of sectoral behaviour, therefore contribute significantly to the institutional framework. They provide cohesion and preserve the unity of the sector while encouraging organisational change which leads in the desired direction.

Participation has become a fashionable watchword. It has been promoted in publications and at international conferences as the mode of professional behaviour that foresters should adopt in order to achieve sustainable development (see Box 6.11). In part, this is a reaction against the demonstrable failure in many countries of policies that assigned responsibilities and rights over forest resources to governments, excluding local communities and other groups from resource management decisions which affected their interests³⁴. The belief that state ownership and control was the most satisfactory way of safeguarding forests has been questioned. The implicit assumption that officials employed by the state, by virtue of their expertise and positions, were best able to judge what was in the long term interests of society is no longer accepted. The dominating position that state forestry once occupied (and still pertains in some countries, due to the extensive areas of forest land, which are owned, managed and controlled by the government) is being modified to meet changing perceptions worldwide. More positively, participation is being promoted because it is recognised that the forest sector is made up of multiple interests, with legitimate concerns that need to be accommodated, and it is necessary to adopt a management style that allows for their differing and often conflicting positions. A participatory approach, based on partnerships and cooperation, is advocated instead of the outdated, paternalistic attitudes of the past.

The need for a different ethos and more collaborative management style is not in doubt, but what is meant by participation is less clear. Its interpretation certainly differs from place to place. In developing countries, various forms of social, community and agro- forestry, often aimed at meeting basic needs, depend on direct participation by villagers and farmers in cooperative schemes. For example, since 1978 in Nepal, the control and management of forests has been handed over to local user groups under government supervision, while 'joint forest management' became official policy in India in 1988, enabling local communities to rehabilitate degraded forest land in partnership with state forest departments³⁵. In South Africa, private sector/community partnerships, which relate to afforestation of communally owned land, take two forms: contract tree growing by outgrowers to supply pulpwood and equity sharing schemes in which profits from tree growing enterprises are divided according to the participants' stakes³⁶. In these cases, participation means literally 'taking a part'; it involves sharing³⁷. In this sense participatory forestry has been enthusiastically promoted by aid agencies, though not always with

Box 6.11 International declarations advocating a participatory approach for forestry

Point 6 of the Antalya Declaration recording the conclusions of the 11th World Forestry Congress, held in Turkey in October, 1997 called on:-

“Countries, international organizations and forestry professionals to work in *open and participatory partnership* with all interested parties, including non-governmental organizations, the private sector, indigenous people, forest dwellers, forest owners, local communities and others affected by forest and other land use policies and decisions.”

The resolutions of 15th Commonwealth Forestry Conference, held at Victoria Falls in May, 1997, included the following group of recommendations on participation, addressed to “nations including Governments and civil society (non-governmental organisations, research and educational institutions, the private sector, forest services and communities in their heterogeneity)”:-

- “all those concerned in forest management strive to develop strong collaborative mechanisms at all levels to promote and implement sustainable forest management practices.
- donor organizations reorient their approach to facilitate these collaborative mechanisms.
- relevant interest groups to be clearly identified to promote sustainable forest management and to ensure equitable benefit sharing.
- decision making should be devolved to the most appropriate level taking into account the local realities and the need to empower the local level decision makers and resource managers.
- sustainable forest management practices, participation and ownership at the local level need to be complemented by legislative and institutional adjustments.
- appropriate land and tree tenure arrangements are promoted to encourage wise use of forest resources and community self-sufficiency.”

Source: Reproduced from *Unasylva*, 192, 1998/1 and *Commonwealth Forestry Review*, 76, 1997/3.

satisfactory results. Success depends on donors’ ability to encourage supportive institutional changes and reallocation of benefits, which participants often find painful or unacceptable.

Participation is also advocated in relation to decision making. It is regarded as a necessary part of the decision making process in a modern democracy. Interest groups are invited to be represented when policies are formulated and plans are drawn up; stakeholders are consulted before forest management decisions are taken. In this context, participation can be interpreted as ‘listening and learning’. Techniques for discovering peoples’ attitudes and opinions have been developed,

particularly in Europe and North America, which use both broad-based surveys and focussed groups. Thus, various methods are being applied in Canada for contemporary forest management decisions, such as the extent of the Wakimbi Provincial Park in Ontario³⁸, and for practical investigations into sustainability in Model Forests³⁹. Participation is seen as a two-way communication process that influences both the decision makers and public opinion. Its objectives are said to include information gathering, consulting on reactions, defining issues, testing ideas, seeking advice, obtaining consensus, and delegating authority; the methods used include preparing position papers, written briefs, opinion surveys, public meetings and hearings, workshops, task forces, advisory committees and joint planning teams.

National Forest Programme preparation, as advocated by FAO, is perceived as a participatory process based on consultation⁴⁰ (see Box 6.12). It involves government and non-government organizations as well as the private sector, with particular

Box 6.12 Participation in National Forest Programmes

“National Forest Programmes are participatory processes. From planning to implementation and including evaluation, these promote and assist, when necessary, the participation of all stakeholders.

Through public participation the divergent views and conflicts of interest of the various stakeholders are openly recognised and can thus be resolved where possible. Issues, options and the resulting policies, strategies and programmes are agreed upon through participatory decision-making and consensus building among all interested partners. Participation is required in order to:

- raise awareness of the importance of forests and environmental conservation for the benefit of present and future generations;
- enhance the dialogue between the forestry sector and other sectors of the economy in order to emphasize cross-sectoral issues and impact, to harmonize sectoral policies and actions, to ensure the full integration of the National Forest Programme within the National Development Plan and harmonization with other planning initiatives that influence forestry activities;
- identify the aspirations and promote the needs of various stakeholders with regard to forest lands and resources;
- strike a balance between forestry development activities and conservation imperatives in the light of perceived needs (present and future);
- develop a sense of ‘ownership’ of the National Forest Programme (appropriation of the process) and commitment to the proposed policies and programmes by all partners, not only government institutions.”

Source: FAO (1996), page 17.

attention given to the participation of local and regional level organizations, women and local communities.

The accommodation of multiple interests has been called pluralism. It is based on recognizing the inevitable existence of differing, often conflicting, positions on any significant question, ranging from politics to ecosystem management. It describes situations where groups are autonomous and independent, but often inter-dependent, with legitimate claims and different positions on critical substantive issues⁴¹ (see Box 6.13). This situation pertains in the forest sector and has important implications. Pluralism helps to explain why some attempts at adopting a participatory approach have failed, due to imbalance in the basic relationship between the government agency responsible for forest management and other organiza-

Box 6.13 Key concepts for pluralism in sustainable forestry and rural development

- “Different groups have and always will have different experiences, positions, opinions and objectives on sustainable forest management and rural development.
- Groups are autonomous and independent; there is no single, absolute and permanent solution to any substantive natural resource management problem — for any given land unit there is no single, absolute, sustainable management land use scenario (there are numerous ‘sustainable scenarios’).
- No group/organization can claim a superior or absolute scenario.
- Sustainable forestry and rural development decision-making is no longer the sole mandate of expert authorities.
- A system of organizational checks and balances is central for avoiding errors of a narrow single entity management system — this is the positive aspect of ‘bounded conflict’.
- Conflicts are inevitable and cannot be resolved but managed.
- Equity in decision-making is a distant but worthy ideal.
- Platforms, mediators and facilitators are often needed to provide the conditions for negotiation and cooperation needed for sustainable forest management.
- Communication is essential and helps participants understand their differences better.
- Consensus is unlikely but progress can be achieved without it.
- Approaches to sustainable forest management that aim at consensus are often misguided and unsustainable.
- Proactive approaches and new processes of sustainable forest management decision-making in pluralistic environments are emerging — more experience is needed.”

Source: Anderson, Clément and Crowder (1998).

tions/groups with differing ideas⁴². Meaningful participation is a two-way process in which the technical solutions to management problems cannot be imposed by officials on others or by a powerful group on the rest. The forest service may be the lead agency, but it needs to embrace alternative perspectives and discordant views, bringing them into the open rather than suppressing or overriding them. Participatory management implies respect for minority interests and partnership.

Pluralism also throws new light on sustainability by revealing that many versions of sustainable management are possible, based on the competing interests and values of the participants; this is more likely to be achieved by compromise than consensus. Some may prefer one mixture of outputs (say one that favours timber production), while others put a higher value on other combinations (say landscape and biodiversity), although both options satisfy the three-point recipe for sustainability suggested in the previous chapter. This pluralist view differs from the idea that sustainability can be judged according to a predetermined set of criteria and indicators, which seems to imply that sustainability is a definable standard, regardless of who is doing the judging.

Acceptance of the pluralist perspective implies that conflict is inevitable. Although not all conflict is bad — within limits opposing viewpoints and competitive situations are desirable — it is necessary to avoid dysfunctional conflict. A conflict is said to be *functional* if it improves the quality of decisions, stimulates creativity and innovation, provides a way of airing grievances, releases tensions and encourages self-evaluation and change; it is *dysfunctional* if it breeds discontent, dissolves common ties, retards communication, reduces group cohesion, allows individual interests to supplant group goals, reduces effectiveness and threatens group survival⁴³. Therefore, the institutional framework of the forest sector should encourage the positive and discourage the negative aspects of conflict. It should provide mechanisms for the resolution and management of conflicts of all kinds, whether caused by competing demands for resources, incompatible activities or alternative claims on outputs.

Basically there are five ways of dealing with a conflict: forcing the issue, avoiding it, compromising to reach agreement, accommodating the opposing view or collaborating to solve the problem together. Which of these is chosen depends on the relative powers of the organizations/groups involved to impose their will on others, the cost of continuing the conflict, the attitudes of the disputants, and the significance of the conflict in relation to their goals and long term aspirations. A minor difference of opinion may be settled by avoidance, compromise or accommodation for the sake of maintaining harmonious relations or as a bargaining counter in a more important dispute; as the saying goes, 'he who turns and runs away, lives to fight another day'. The parties in a dispute may be drawn or forced into confrontation, when the outcome is likely to be dysfunctional. Settlements arrived at voluntarily may be reached by negotiation, mediation by a third party or arbitration by a higher authority. Forest sector institutional arrangements should be designed to avoid confrontation, as far as possible, and to support conflict

resolution by voluntary means, offering mediation and arbitration in appropriate circumstances.

Many conflicts affecting the forest sector are disputes with external interests, as between alternative claims to the use of land, or the relative share of the national budget allocated to forestry. In some cases conflicts arise between forestry interests, as perceived nationally or locally, and international opinion, as expressed by international agencies or environmental pressure groups. Other disputes are internal, involving differences between organizations/groups within the sector, such as the size and share of the permitted annual yield of timber made available for different industrial uses, or for log exports instead of domestic processing. Conflicts about the management of forest land arise with conservation interests eager to protect biodiversity and tribal communities anxious to safeguard their basic needs and preserve their way of life. The administrative arrangements necessary to anticipate, contain and resolve these different types of conflict are likely to vary according to their nature. Formal procedures, sometimes involving legal processes backed up by appeal to the courts, may be required to protect the rights of minority groups. Informal conciliation procedures, including regular meetings between stakeholders, which allow opinions to be voiced and arguments to be heard, enable conflicts to be exposed and managed rather than allowed to develop into damaging confrontational situations.

Maintaining cohesion in the forest sector depends partly on the effectiveness of its arrangements for dealing with conflicts and partly on the quality of its leadership. Conflict resolution prevents the sector from disintegrating while leadership encourages organizations to work together towards shared goals; disputes lead to organizations squandering their energy in trying to protect their short term interests, while purposeful direction and effective implementation of sector strategy help to induce confidence in its future development. Effective leadership helps to transform the forest sector from a mere collection of groups and individuals pursuing their independent agenda into a conglomerate in which interdependencies are appreciated and the advantages of cooperation and association are recognised.

Leadership has been defined as the relationship by which one person or group influences the behaviour and actions of others⁴⁴. It has similarities with management, but, particularly in relation to business organizations, leadership tends to be associated more with personal characteristics and the potential of individuals to bring about change and development. With reference to the 7-S organizational framework previously described, it has been suggested that leadership is particularly concerned with organizational style, staff, skills and shared goals; whereas strategy, structure and systems are management functions. However, this interpretation applies to a single organization; not a conglomerate. In the context of the forest sector, it is evident that leadership also includes initiating and controlling the process by which sector strategy and programmes are prepared; it is about identifying the right direction for the sector as well as generating a sense of unity and common purpose among stakeholders. Sector leadership is concerned with both vision and enthusiasm among stakeholders.

Sectoral leadership covers a wider managerial span than planning and direction; it covers the whole of the institutional framework. Attention should be paid to all five of the framework's functional aspects. For the sector to function properly it is up to the leadership to see that the necessary laws are passed, plans prepared, resources allocated, education provided and intergroup relationships maintained. Leadership works through the institutional framework. It provides the main means by which the behaviour and actions of organizations/groups can be influenced and the shape of future events determined. Effective leadership depends on how well the sector's institutions are used. Imagination to spot development opportunities and drive to take advantage of them are required, but, in a sectoral context, leadership is likely to be less dependent on personal characteristics and charisma of an individual than on the power of a lead agency to coordinate and control the institutional infrastructure. The functions of leadership in relation to the sector are more likely to be exercised by an organization than an individual.

The pluralistic nature of the forest sector invites the question, who should lead? Which of the numerous organizations/groups in the sector should act as coordinator, facilitator, mediator and conductor of the band? Leadership in this context depends on willingness to be led; the association of stakeholders must be voluntary, it cannot work by compulsion. At the same time, in terms of national responsibility, the government has the last word as legislator and policy maker. Forest policy should be developed by consultation and consent, but must be ratified by the government. It follows that only a ministry or government department is likely to have the power and authority necessary to act as lead agency. Generally, this task falls on the ministry responsible for forest resources, or is delegated to the forest department or forest service. Other ministries' remits may include forest sector activities (eg. industry and trade) in their portfolios, but they are unlikely to be able to give forestry matters their undivided attention or possess the expertise to deal with the problems associated with natural resources. For this reason, the government agency which handles forestry matters is usually made responsible for overseeing the national forest programme and also represents the interests of the sector in its dealings with other sectors and international agencies.

6.3 SECTOR MANAGEMENT

The topic of leadership and, more generally, the relational aspects of the institutional framework lead us to the broader subject of management. Most definitions of management incorporate some notion of leadership⁴⁵. In an organization, managers are expected to display leadership qualities; in a sectoral context, leadership is bound up with managing the sector. The quality of leadership in the forest sector determines the style of management that permeates its affairs. Sector management is usually in the hands of senior staff in the forest department or ministry and the way the sector is managed depends, to a large extent, on the perspective and attitudes of professional foresters.

The task of managing a single organization, like the forest department, is different from the problems associated with managing a conglomerate such as the forest sector. The difference is comparable to the contrast between government of a unitary state and the difficulties of governing a collection of subsidiary states under a federal constitution. The forest sector is a sort of federation, though it does not have the benefit of a formal constitution to regulate its internal relationships and the separate organizations which constitute the sector have not given up their sovereign right to manage their own affairs. Their association is voluntary, although they are subject to various obligations and sanctions which the state has power to impose. It is based on informal agreement, held together by common interest, which members can depart from at any time, provided they do not break the law. In such circumstances, management of the sector is different from managing a business enterprise, government department or NGO. It is more a matter of coordination, indicative planning, providing incentives, generating enthusiasm and fostering unity, and less a style of management based on authority, direction, control of costs and outputs, staff discipline and orderly structure. Sector management not only requires different skills and attitudes, it is also a more difficult undertaking.

Management style is therefore a subject that merits further examination. There are also other aspects of sector management to be considered in this section. Some relate directly to the institutional framework and the way the sector works. The integrity of the sector as a unit needs to be preserved and its activities coordinated, the way it changes needs to be managed positively, and its capacity to deliver the goods and services that society requires needs to be built up. However, sector cohesion, change and capacity are means to an end. The primary justification for managing the sector is to achieve its development objectives. Deciding what these objectives should be and how best to attain them is the primary task of sector management, which is therefore concerned with strategy and its implementation. This section addresses all these topics. They are key issues, which distinguish forest sector management from the management of the companies, government departments and other unitary organizations which make up the sector.

Forest sector management is a novel concept, particularly for senior officials in forest services, departments and ministries, who are the people most likely to be engaged in it. Usually they have been accustomed to traditional public administration and are not used to the idea that the forest sector can, or should, be managed in its entirety with a sectoral perspective. They do not always recognise that their responsibilities as managers are not limited to upkeep of the forests but should take account of social and economic development priorities. Their primary objective should be properly coordinated development of the whole sector in the interests of all its stakeholders for the benefit of the community at large. This requires a transformation in managerial attitude, a process which has begun (though not always successfully) in those countries where national forest programme preparation has been undertaken. Sector management, as an idea, needs to be promoted and extended to include the other institutional functions. Forest sector development

concerns all forest sector organizations, affects the interests of all stakeholders, and should spread to cover all aspects of sectoral development.

Management Style

Much of the difficulty that has been experienced with sector strategy and NFP preparation originates with the style and organizational culture that has prevailed amongst professional foresters within public forest administrations. They were successful in their traditional role as protectors of forest resources and providers of forest outputs during the first three quarters of the twentieth century. They were trained to take control of events in the forests and adopted 'machine model' thinking in their organizational structures. Since then, many long-standing natural resources policies and practices have been questioned and there is now public scepticism of the professed skills and idealistic stance adopted by many professionals, including foresters, in Europe and North America. This change is part of the general transition to an urban, post-industrial, global economy and its associated social consequences. The machine model is being replaced by more complicated 'organic model' perspectives⁴⁶. Many of the traditional agency assumptions, values and core beliefs are being reconsidered as we move into the twenty-first century.

The emergence of a new paradigm for public administration has been described by Hughes⁴⁷. The rigid, hierarchical, bureaucratic form, which has predominated for most of the twentieth century, is changing to a flexible, market-based form of public management. He points out that this is not simply a matter of reform or minor change in management style, but a change in the role of government in society and the relationship between government and citizenry. Traditional public administration has been discredited theoretically and practically. The assumption that following the classic principles enunciated by Weber is the best way of running an organization in the public sector is no longer accepted. The new managerial model is based on different perceptions. Delivery by a bureaucracy is no longer seen as the only way of providing government goods and services. More flexible management systems are being adopted and, in appropriate circumstances, governments may operate indirectly through others instead of being the direct provider. The public expects better standards of accountability. Traditional bureaucracy is being replaced by a more open style of administration, which is also concerned with policy development, objectives, efficiency and effectiveness. This general revolution in attitudes applies equally to management of the forest sector as to other areas of government activity. Professional foresters risk being sidelined or made redundant if they fail to respond adequately to the challenges that it presents.

Development of the new paradigm for public management in general is matched in forestry agencies in the Western world by the transition in organizational style from machine thinking to an organic perspective, which Kennedy, Dombeck and Koch have identified. Their analysis applies to public agencies concerned with natural resources management, such as the Forest Service in the USA and the Forestry Commission in UK. Machine model thinking perceives management in

rather simple, segmented and linear terms as opposed to the complex, highly integrated systems approach of the organic model; the former relies on deductive logic and simple, optimization methods, whereas the latter uses inductive, integrative logic and complex, simulation techniques. Table 6.5 shows the differences in more detail. The changes are far reaching and necessitate a profound shift in professional attitude and understanding.

The new paradigm is applicable to all organizations in the forest sector, whether public or private. All need to broaden their thinking and appreciate the need for changes in the way they operate and cooperate with others. However the role of the lead agency is vital. It sets the style for sector management and creates the conditions for the spread of new ideas. As has been noted, the government department responsible for forestry affairs is most likely to be assigned the leadership functions. This puts a double burden on professional foresters: not only should they change their methods in relation to management of the forests which are their direct responsibility, but they also must adopt new ways of working and altered relationships with regard to forest sector management. Perseverance and adaptability are necessary to bring about this shift in organizational culture.

Cohesion

The lead agency's responsibility for transforming organizational style is accompanied by its duty to maintain sectoral cohesion and foster unity among member organizations. It must hold the sector together while managing the processes of change which affect both the conglomerate and the organizations within it. Opposing forces are at work, which have been described as *centrifugal* and *centripetal*⁴⁸, the former tending to fragment the sector while the latter seek to hold it together. The lead agency has the task of maintaining the balance between them.

In any organization, a kind of entropy is at work which leads to disorganization; there is a tendency for subgroups to develop their own aims, interests and identities, which may be contrary to those of the parent organization. This disruptive tendency needs to be countered by measures that strengthen internal bonds and maintain discipline. The measures vary according to circumstances and each organization strives to maintain its own equilibrium and internal harmony. The internal dynamics of relationships in government departments differ from those found in profit-seeking enterprises, non-commercial organizations and representative interest groups. Small firms and organizations located in one place are easier to control than ones that are widely distributed or operate internationally. In a decentralized organization with regional or district offices, or where activities are dispersed amongst field stations, as is the case with forest departments, the geographical spread of operations encourages fragmentation. Field staff are encouraged to develop their own ideas and isolation throws them onto their own resources; they must resolve difficulties themselves and may evolve informal policies of their own which differ from the official line; their sympathies may even be captured by local populations in disputes with the government. These centrifugal factors are countered from the centre by issuing standing

Table 6.5 Machine model views of forest management and managers evolving into organic model perspectives

	MACHINE MODEL First 75 years of twentieth century	ORGANIC MODEL Close of twentieth century
Common management perspective	<p>Guiding norm: maximum sustained yield of wood, game or forage (output-focussed) and economic efficiency.</p> <p>Plantations intensively managed for timber.</p> <p>Foresters must protect forests from hostile forces (fire, insects, vegetative competition, recreational users, politics) both within and outside the forests.</p> <p>Forests seen as objects to use, control and manage for production of goods/services for humans.</p> <p>Fascination with new industrial age technology (e.g. machines, chemicals, linear programming, genetics).</p> <p>Management era: primarily one-way, paternal flow of control from foresters to forest and other 'outside' forces (including users).</p> <p>World is predictable: be smart, rational, plan, model and exert control.</p> <p>Economic growth/development model: develop capital, increase resource utilization, produce more.</p>	<p>Sustainable, healthy forest systems (process-focussed) for diverse, changing market and non-market social values.</p> <p>Diverse, multifaceted and multivalued forests (including plantations), watersheds and ecoregions managed for diverse, changing social values.</p> <p>Foresters can help forest ecosystems to be healthy and robust enough to adapt effectively to many uses and forces.</p> <p>Healthy, enduring forest ecosystems as 'subjects' of value and respect in utilitarian, symbolic, identity and other relationships with humans and their cultures.</p> <p>Rethinking the balance of technology in management innovation, efficiency and resource use.</p> <p>Facilitation era: foresters in partnership with forests, diverse and interdisciplinary colleagues and public in collaborative socio-economic, ecological and other systems management.</p> <p>World is unpredictable: be open, aware, widely connected and adaptable.</p> <p>Evolution towards sustainability and community quality of life perspectives.</p>

(Continued)

Table 6.5 (Continued)

	MACHINE MODEL First 75 years of twentieth century	ORGANIC MODEL Close of twentieth century
Respected forester role models	<p>Era of tough independent great men, omnipotent foresters and other professional heroes.</p> <p>Patronistic management: caring, knowing, benign forest expert who is 'in charge'; foresters manage forests for the people.</p> <p>Objective professional, educated in hard sciences and, perhaps, economics.</p> <p>Tendency to specialize in separate forest or ecological subsystems, often in different bureaucracies.</p>	<p>Era of interdisciplinary teams, power sharing and forester diversity to reflect national diversity.</p> <p>Partnership management: foresters facilitating a more open democratic process of public involvement, customer service and broad, diverse partnerships. Forest ecosystems managed in partnership with the forest and with the people.</p> <p>Professional educated in traditional hard sciences balanced and strengthened with philosophy, social science or communications skills.</p> <p>Specialization must be linked, validated and operationalized in larger ecological, political and socio-economic systems.</p>
Time perspective	Targets: fiscal year, project horizons or stand rotation.	Targets include broader, long-term view of desired future conditions.
Space perspective	<p>Focus on the forest stand.</p> <p>Local and regional focus.</p>	<p>Expand to ecosystem, landscape and ecoregional spatial dimensions.</p> <p>Regional-national-global view.</p>

Source: Kennedy, Dombeck & Koch (1998), page 20.

orders, technical instructions and guidelines, setting standards, inspections, reviews of progress and similar bureaucratic procedures. Good internal communications are essential to success in public organizations responsible for state forestry.

In a coalition such as the forest sector, the inherent tendency to disintegrate is reinforced by conflicts of interest between member organizations. These disruptive forces are more powerful than those in a single organization and appropriate means of preserving the sector's holistic integrity need to be devised. The causes of tension include external threats to forest resources from alternative forms of land use and differences in opinion within the sector about the purposes and ways of managing resources. Different management regimes provide different combinations of outputs, yielding different output mixes for consumers. For example a decision to reduce the allowable cut of timber, for whatever reason, is likely to be opposed by timber processing interests, and proposals to boost timber output by replacing natural forest with high yielding plantations, although supported by industry, may run into objections from conservationists and local communities deprived of traditional forest rights. Disputes between interest groups within the sector are inevitable and it is therefore essential for the lead agency to have in place procedures for conflict resolution and maintaining harmony. Also, since the members of the coalition are independent organizations, their disputes must be settled by voluntary means. The pluralist philosophy goes beyond disputes and their resolution to a framework for participatory decision making based on consent. Pluralism is based on harmonious relations; without cooperation, sector management will break down.

The centripetal tendencies in the forest sector are based on common interest and the interactions between its members. Processing chains link forests to consumers and the provision of services for the community, such as landscape protection and biodiversity, is dependent on the forest ecosystems and the way they are protected. Management of the sector can reinforce these tendencies by appropriate action aimed at building strength through unity, when confronting external interests and resolving internal conflicts, which dissipate energy and waste resources. The lead agency can represent the sector, so that it speaks with one voice, and can facilitate collaboration between member organizations in the interests of economic development and increased national welfare. It influences resource deployment and the distribution of effort within the sector, working through the institutional framework to improve the efficiency and effectiveness of sectoral activities. Sector management therefore aims to foster a common purpose and provide a basis for joint action.

Cohesion is justified by the potential benefits of managing the sector as an entity rather than leaving it alone as an assortment of independent organizations following their own, separate inclinations. A policy of non-interference would have serious disadvantages, leading to underprovision of services which are valued by society but have no market prices and unsustainable exploitation rates where forests are treated as common property. Therefore, it is generally recognised that a *laissez-faire* policy is not tenable; some government control of sectoral activities is essential and some influence on their development is in the public interest. This is evident from

Box 6.14 Change management

“Whatever type of organisation people work in, and whatever type of job they do, the one fact that can be relied on is that the organisation and their job will change, sometimes quite dramatically, and not always for the better. It follows that the ability to initiate and manage change is one that all managers need to possess. It could even be argued that what distinguishes the successful manager and the successful organisation from their less successful counterparts is the ability to manage change.”

“The actual process of organisational change, no matter what theory or approach is being applied, requires someone or some group to intervene in the running of the organisation to effect this change. The intervention could be led by the people who are the subject of the change process. More often, it is led from outside the department/area concerned, or even from outside the organisation. However, regardless of who leads the process, such interventions must be planned and structured activities initiated in response to a recognised need for change, and having as their objective a direct or indirect improvement in organisational performance.”

Source: Burnes (1992), pages x and 166.

the emphasis now given internationally to NFP preparation. Sector management is based on appropriate intervention in sectoral affairs, recognising the interactions which link different parts of the sector and the community of interest which binds it together. The task of the lead agency is to advance the interests of the sector as a whole. Cohesion depends on building a sense of identity and a distinctive sectoral ethos. Under dynamic conditions, a recognizable identity and ethos help to provide stability and continuity. They assist the organizations and institutions which make up the conglomerate to adapt to change in an orderly manner.

The Management of Change

Cohesion strengthens the sector in relation to other sectors and other countries. Through unity comes strength. But cohesion should not be preserved by attempting to prevent change. People tend to be resistant to change and it is potentially disruptive, but change is inevitable and needs to be managed rather than avoided. Dealing with change is a vital concern of sector management. The lead agency is continually called upon to cope with changes originating inside and outside the sector. It is necessary to minimize their disruptive effects as far as possible and to take advantage of the new opportunities for development which changes bring. However, change needs to be carefully and sensitively managed, both at the individual level, within sector organizations and for the conglomerate as a whole. Forest managers need to become change agents.

The management of change (see Box 6.14) has become an important responsibility of managers⁴⁹. The forest sector is affected by internal changes and external changes originating in other sectors or derived from international sources. Sector organizations can respond flexibly to changes in their circumstances by redeploying resources, altering their activities and modifying their outputs. They can also change themselves deliberately in order to take on new tasks, restructure themselves or develop their roles. The performance of an organization may be improved by influencing the attitudes of those who work in it, its customary practices, organizational culture and style. In a passive sense, sector organizations are the recipients of change, in an active sense, they can initiate and encourage change. Both categories — responsive and developmental — require management to mitigate their undesirable consequences.

Change management is a concept that is applicable to all the organizations that make up the forest sector. It has even greater significance for the sector as a whole, as a means of reducing tensions between stakeholders and rival groups, and as a way of promoting its development. Organizational change can be initiated from the periphery or from the centre. Particular individuals or groups may press those in authority for changes in working practices or managers may initiate planned changes affecting the structure and the work force. In a firm or government department, the process is more likely to be top-down than bottom-up; in NGOs, the membership usually provides the stimulus. Sectoral change is mostly driven from the centre, with the action controlled by the lead agency. A participatory style of sector management is essential if planned changes are to become actual alterations of style and content. Generally, managing organizational change is problematical. Even in a limited context, within a single organization, it is difficult to reorganize operations and transform attitudes; the difficulties are compounded when the aim is to bring about changes affecting the whole sectoral conglomerate.

Various triggers for organizational change have been identified in private sector companies, including increased competition, new technology, environmental sensitivity and workforce diversity; the most potent cause is financial losses or profit reductions⁵⁰. In the public sector, market signals are not so obvious and consumers' interests must be reconciled with the collective interests of the community. The dilemma for managers in the public domain is how best to achieve public purposes, as determined by collective choice and social policy, while responding to the needs and rights of individuals⁵¹. In an age of rapid change and peoples' growing awareness of injustice, the problems that this issue poses for public sector administration have been a feature of the last part of the twentieth century. The management of change, for a forest department, involves anticipating and, as far as possible, meeting the changing expectations of the public for goods and services derived from forest resources, some of which are traded while others have no market prices. The dilemma is compounded when the forest sector is considered, because consumers' needs must be balanced against the interests of organizations and groups within the sector, whilst also meeting the requirements of society, expressed either directly or through the political process. None of these demands and pressures remain

unchanged, so managers are obliged to respond by continual adjustment and must learn to live with uncertainty.

Burnes points out that organizational changes come in many shapes and sizes⁵². He distinguishes two categories: *radical* changes, which relate to large-scale, organization-wide transformation programmes involving the rapid and wholesale overturning of old ways and old ideas, and *incremental* changes, which are relatively small-scale, localised and designed to solve particular problems or enhance the performance of part of an organization. Radical change necessitates a break with the past; it is also known as revolutionary or discontinuous change. Incremental change, which is less dramatic, is described as evolutionary or piecemeal. A coordinated programme of gradual improvements may succeed in bringing about substantial changes over a period of time, but lacks the shock effect necessary to deal with the impact of sudden or severe disturbance which is a feature of radical change. It should be noted that change management at forest sector level has to cope with both categories. It is also likely that failure to recognise the need for radical change when preparing NFPs has led to their failure in some countries.

Change management is not a distinct discipline with well-defined boundaries. There are various schools of thought, based on the behaviour of individuals, groups and complete systems. From an individual point of view, behaviour is learnt and changes in behaviour can be taught; therefore the behaviour of individuals in an organization must be influenced by training, rewards and sanctions in order to change its culture and performance. The group dynamics school is based on the rationale that people in organizations work in groups, so that it is necessary to modify group practices and norms to alter the behaviour of the organization. The systems approach views the organization as an open system, made up of interconnected subsystems. By studying and altering its parts, it is possible to change the whole; overall objectives and synergy can be achieved by modifying the behaviour of the subsystems. In practice the systems perspective is surely correct because organizations are social systems. Change at one level or in one area should take into account the effect it will have elsewhere in an organization. However, whether the perspective is organization-wide, or limited to groups or individuals, it is behaviour that is being changed. This requires the cooperation and consent of the groups and individuals that make up the organization, and only through their behaviour can the objects of change — the proposed new structures, technologies, systems and procedures — be turned from ideas into reality.

It is clear that all three approaches have their place in the organizations which constitute the forest sector. Successful change management at sector level depends on using various methods in combination to achieve maximum impact. The sector can be regarded as a system and its parts as subsystems. Sectoral change is achieved by altering individual attitudes, group behaviour and organizational style. New skills must be learnt and new technology introduced. Therefore, education and training play an important part. Restructuring involves altering the range and content of sectoral activities and also the balance between them. The interactions between levels and the relationships amongst organizations are affected. A vital feature is coordination and control of the change process, which is achieved by formulating

appropriate strategies and programmes. The way that the sector is transformed depends on creating changes at all levels. The system as a whole is altered by numerous subsidiary modifications within the system, in accordance with an overall national programme for forest sector development.

Sector Capacity

Change management enables the sector to adapt to altered circumstances and shifts in society's output preferences. The process of adaptation involves alterations in sector capacity. The role and standing of the sector in national and international matters is based on its continued ability to satisfy society's wants and basic needs. Another important aspect of management of the sector is therefore concerned with changing its capacity to match changes in the demands made on it. As economies grow, capacity needs to be expanded by adding to the resources of the sector, increasing the level and effectiveness of its activities, and extending the range of its outputs. Capacity limitations restrict sector development and capacity building enables the sector to increase its contributions to the wealth and welfare of the community.

Resource capacity is determined by the productivity of the forests, the amount of capital invested in sectoral assets and the abilities of the people in the sector. Capacity building therefore involves increasing the flow of outputs from forest resources, improvements in plant, equipment, machinery etc. and the acquisition of new technology, and the development of human resources. A minimum level of capacity is necessary for the sector to function, from which quantitative and qualitative improvements enable sector capacity to be built up. The institutional framework plays an important part in this process. The build-up affects natural, man-made and human resources and the way they are combined. The process involves additional inputs and knowledge.

Additions to the productive capacity of natural resources may come from afforestation, which adds to the area of forest land, or from changes in productivity by altering the way existing forest resources are managed. Natural forest can be manipulated silviculturally to favour particular species, at the expense of others considered less desirable, or converted to plantation monocultures supplying larger outputs of one specific kind. The available moisture, minerals and sunlight available from the site can be concentrated on producing the types of output which are most preferred, ignoring other types or species of lower value. The 'improvement' process is specific to the outputs and may lead to reduced benefits of other kinds, such as increased timber production at the expense of biodiversity. The process is similar to that practised for centuries in agriculture, giving more productive pastures and arable crops composed of single species in fields which are free of weeds; the improvements extend into selective breeding of plants and livestock, which favour particular outputs. Tree breeding for timber crops is no different in principle from the development of new varieties of grain for food and, similarly, forest management is open to technological advances in genetic modification.

Increases in capital resources come from investment in additional assets and upgrading the quality of existing capital by replacement of outdated plant and equipment with new designs and improved technology. Changes in sectoral capacity accrue, for example, from computerized control of wood processing machinery and the use of information technology to improve communications. The knowledge required for satisfactory management also needs to be collected and stored, and represents capital of another kind. A minimum level of information can be identified, which is essential for sustainable management of forest resources. This includes maps showing the distribution of topography, soils, forest types and ecosystems, and inventories which describe and enumerate their content. Similarly, it is necessary to acquire information about the sector's physical assets, which determine harvesting, processing and transport capacity, and changes in stocks.

The institutional framework affects the capacity of the sector. The regulatory infrastructure and allocative arrangements are necessary functions, which restrict sectoral activities, and capacity building is influenced by the policy and programmes that are chosen. Human resources development depends on education and training. From a dynamic point of view, the sector should be regarded as a *learning organization*. Its capacity can be increased by providing facilities which enable individuals and organizations to appreciate what the sector is capable of achieving and to introduce new ideas and methods of working. Research leads to the discovery of new facts and a better understanding of how best to improve sectoral performance.

Various types of organizational learning have been identified⁵³. Single loop learning is concerned with improving performance in relation to a fixed or unchanging objective, double loop learning is about improvements in both performance and objectives. The latter allows for the constant re-evaluation of the goals, values, beliefs and assumptions that underpin performance.

Both categories affect sector capacity. 'Adaptive' learning, which is concerned with how to adjust to environmental change, is distinguished from 'generative' learning, which involves constant re-evaluation of the situation and organizational innovation and creativity. A fully developed learning organization goes beyond knowing, understanding and thinking to a situation in which change is regarded as a way of life. It involves listening to dissent, recognising that events represent learning opportunities and experimenting. This is the philosophy to which the forest sector should aspire.

Growth and Development

Capacity building enables growth and development to take place. Growth refers to increases in the quantity of outputs produced as the economy expands, while development has a wider connotation, covering qualitative changes in the output mix as well as additions to the volume or value of goods and services. Even if no growth takes place, development is possible if satisfaction with the performance of the economy is improved. Development is also concerned with the equitable distribution of benefits to different classes in society and protecting the interests of

future generations. A nation may be made better off by changes that bring a broader range of benefits to more people, or spread existing benefits more widely, or offer additional choices in later years. The primary interest of forest sector managers should therefore be with development rather than growth.

Development of the forest sector is based on increasing the contribution that it makes to the wellbeing of society. It is a dynamic process that depends on changes to the resources, activities and outputs of the sector. The process is also concerned with meeting peoples' physical and spiritual requirements, fair shares to stakeholders and sustainability. Development involves making adjustments to the quantity and quality of the output flows derived from forest resources, altering the activities of forest sector organizations and improving the distribution of the benefits derived from their activities. The sector responds, quantitatively, to increased demand for its goods and services as populations and incomes expand, and, qualitatively, to changes in the preferences of consumers and society as tastes alter and peoples' life styles evolve. The concern for equity is addressed by ensuring that the poorest sections of the community do not get left behind in the distribution of benefits. Sustainability involves continuity of supply and safeguarding forest resources so that their future ability to supply goods and services of all kinds is preserved. The sector is also open to external influences from other sectors and expressions of wider environmental concerns. Development is achieved by adaptation in response to internal and external pressures for change. The process enables the sector to adjust to changing circumstances and allows it to move with the times.

Development takes place as a consequence of change; it is also a deliberate process that induces changes leading to transformation of the sector. It involves intentional interventions that bring about desired changes to the organizations that make up the sector and modify the interactions that take place between them. Development may be stimulated by interventions at either end of the processing chain. Supply side changes affect activities and output along the chain in a forward direction, and changes in demand work backwards to influence their scope and range. The way resources are managed affects what sector organizations do and the resulting flow of goods and services; consumers' choices, expressed through their purchasing power or via pressure groups and public opinion, influence what is produced and the flow of raw materials and other services that feeds the productive process. These interactions, pushing and pulling the organizations in the sector, provide a mechanism for sectoral growth and development. Positive management seeks to increase productivity, make better use of resources, overcome bottlenecks and alter organizational behaviour in ways designed to optimize economic and social welfare. Provided the process of change is managed carefully, it is possible to maintain harmonious relationships between organizations while sustaining the momentum of development.

The organizations that make up the sector develop by increasing the scale and changing the nature of their activities. Alterations to their behaviour are necessary. Larger inputs of resources may be involved, as with land acquired by forestry departments for afforestation purposes or by conservation agencies to protect forest

ecosystems. Wood processing operations may be expanded by increasing the input of roundwood, enlarging factory capacity and improving the productivity of the people employed. Development may also result from increased efficiency, when inputs are reduced relative to the quantity of output, or from greater effectiveness, due to alterations in the methods and technology used. In relation to the management of existing forest resources, development may be based on making land more productive by expanding output per hectare; extra income may be derived from growing more of the same product on the same land or extra benefits obtained by extending the range of goods and services produced to give greater satisfaction to consumers. Each organization needs to identify development opportunities that are suited to its circumstances and then convert these opportunities into actual improvements in its structure and performance. Opportunities are expected to deliver extra profits or additional benefit flows and it is necessary to decide which options are most likely to generate the largest profits or net gains. The development process is therefore linked with choices, projects and plans. It is necessary for managers to be clear about their organizational aims and the methods that they intend to pursue to achieve those aims. Their intentions are subsumed in the changes to resources, activities and outputs that they are able to achieve and their success depends on their ability to alter organizational behaviour.

At sector level, development results from the combined effect of the efforts of the individual organizations. It is the outcome of the interplay of their activities and interactions, some of which may be counterproductive. The linkages along the processing chain are a centripetal influence, which connects the productive potential of resources to consumers' needs and desires; they help to bind the sector together. The pursuit of organizational self-interest acts in the opposite direction; where an organization's aims conflict or diverge from sectoral interests, they form a centrifugal influence which tends to subvert unified development. Discrepancies are likely to occur between the short-term interests of individual organizations and the long-term interests of the sector as a whole. Sustainability and the preservation of environmental quality are most likely to be sectoral concerns, whereas individual organizations, particularly in the private sector, concentrate on their own financial viability and survival. The reconciliation of short and long term aspirations is therefore an important function of sector management.

Sector management depends on reconciling, as far as possible, the aims of the organizations in the sector and providing constructive guidance for their activities. It is necessary to have a clear statement of sectoral aspirations to which all the organizations can subscribe. Success in forest sector development terms can then be measured by the extent to which these good intentions are achieved in practice. Therefore leadership in the management of sectoral affairs should focus on long-term strategy and the preparation of NFPs. Change should be strategy driven. Sector policy and programmes should seek to accommodate organizations' particular interests, while providing the institutional framework necessary for their growth without discord. Although some constructive tension between particular organizations may be advantageous, generally, it is beneficial to encourage cooper-

ation, collaboration and mutual support. Planned interventions are required to build up capacity and strengthen the sector in its external relationships and international affairs. It is necessary to identify the best way forward for the sector and promote its development in the interests of all its members. This can be done most effectively by formulating a grand design for the sector, in the form of a written development strategy, which provides direction, fosters cohesion and imparts strength. This statement needs to be backed up by a detailed programme, specifying the action to be taken to implement the strategy, which is sufficiently flexible to allow for unexpected events in the future.

The correct perspective from which to view strategy and development is to regard the sector as a system. A holistic approach ensures that it is seen in its entirety and the interactions between its parts are not overlooked. Sector development involves development of the whole system, not just some of its parts. As a conglomerate, development involves changes over time amongst the organizations which form the system and also changes in their interrelationships. It is also likely to involve alterations in the linkages between the sector and other sectors; the forest sector is not a closed system. System behaviour over time results in changes in the output streams and sustainability. Deliberate changes to the system, based on strategy, lead to its development. The parameters of successful development are revealed by the behaviour of the system. Systems thinking therefore offers a useful way of exploring and increasing the contribution of the sector to individual welfare and the public good. It offers a valuable tool for promoting sector management and development, which is examined in more detail in the next chapter.

SUMMARY

- From a human standpoint, the forest sector is a conglomerate, made up of individuals and organizations performing various public and private roles, which are supported and held together by a framework of institutions.
- Organizations are social groups, which exist for a purpose and operate in an orderly manner. They vary greatly in size, structure, complexity and function.
- Forest sector organizations are characterized by dependency (direct or indirect) on forest resources. They include government ministries and departments, other public sector agencies, private companies, landowners, NGOs, trade unions, cooperatives and various informal groups. Some are active in more than one subsector and some also operate outside the forest sector, in other parts of the economy; others have an international remit.
- Organization theory, which deals with the way organizations work, suggests that there is no 'best' structure, suited to all types and situations. Various forms of organization are found, depending on circumstances and the implicit assumptions (or images) in managers' minds. Forest sector organizations are likely to become smaller, more flexible and less hierarchical.
- The institutional framework of the forest sector consists of five groups of features, each associated with a particular function: (i) the laws, customs and

practices, which regulate sector activities; (ii) the policies and programmes, which give direction to its development; (iii) financial and economic arrangements for allocating resources; (iv) education, research and data handling facilities, which supply knowledge relating to the sector; (v) procedures for participation, conflict resolution and leadership, which regularise relationships in the sector.

- These institutional features interact and complement each other. When all are present and properly coordinated, they provide an effective sectoral infrastructure, which is sensitive to external influences and serves as the main means for controlling and developing the sector.
- The forest sector is a pluralistic association of autonomous organizations with multiple interests and different, often opposing, positions, which can only function as a unit by consent. Cohesion depends on effective participation and arrangements for dealing with conflicts. Leadership is a government responsibility, usually carried out by the department responsible for forest resources.
- Forest sector management requires changes in attitudes and style in order to encourage development and foster unity among member organizations. The management of change is an important responsibility, involving capacity building and the maintenance of stability. The sector should be regarded as a 'learning organization'.
- Development is a deliberate process that aims to increase the sector's contribution to the wellbeing of society. It involves intentional interventions in sectoral affairs and constructive guidance for member organizations. A systems approach ensures a holistic perspective. The process is promoted by formulating strategy and undertaking national forest programmes to implement the strategy.

FURTHER READING

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